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REMINDER

ROLE OF EUROPEAN MOBILITY AND ITS IMPACTS IN NARRATIVES, DEBATES AND EU REFORMS

National Institutions and the Fiscal Effects of EU Migrants

WORKING PAPER

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National institutions and the fiscal effects of EU migrants[1]

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Abstract

This paper analyses whether and how the fiscal effects of EU migrants vary across European countries with different institutional regimes. In public debates on free movement, it is often claimed that different national institutions, especially welfare states and labour market regulations, lead to variations in the fiscal impacts of EU migrants across European countries. There are also some theoretical reasons why one might expect this to be the case, although the multidimensionality of national institutional configurations makes it difficult to formulate strong theoretical expectations. This paper is, to the best of our knowledge, the first cross-country empirical analysis of these issues. Distinguishing between five different institutional regimes covering 29 countries, our analysis of the links between national institutions and the fiscal effects of EU migrants is made possible by a unique new data set on the fiscal effects of EU migrants across almost all EEA countries (Nyman and Ahlskog 2018).

Our findings suggest that the main cross-regime difference in the net fiscal impacts of EU migrants can be found between the "State insurance regime" in East European countries and the other four ("Western") regimes in the EU15 countries plus Switzerland, Malta, Norway, and Iceland. The fiscal contribution of EU migrants in the Western regimes is significantly higher than in the State insurance regime.

We do not find any evidence of statistically significant differences in the fiscal impacts of EU migrants across Western regimes, despite the fact that some of these regimes, e.g. the "Basic security regime" (in Ireland, the UK, and Malta) and the "Universal regime" (in Denmark, Finland, Iceland, Norway, and Sweden), are often depicted as diametrically opposed in terms of welfare state and labour market institutions. In other words, we do not find any evidence in support of the common idea that migrants generate a greater fiscal burden in more generous welfare states.

To help explain these results, we run a range of regression models that add country-level and individual-level controls (such as the country's fiscal balance and EU migrants' employment status and age) to the analysis of the links between institutions and fiscal effects, which allows us to "decompose" the fiscal effects of EU migrants in different institutional regimes.

Key words

EU immigration, fiscal impacts, welfare states, labour markets

Contents

1 Introduction

Free movement is one of the fundamental freedoms of the European Union (EU). The right to free movement entitles any EU citizen to work and reside in another EU country without needing a residence or work permit. EU citizens who enjoy the status of a "worker" in another EU country have the same rights and entitlements as working citizens of that country, including access to the welfare state. The principle of free movement also applies to the non-EU countries of the European Economic Area (EEA)—Iceland, Liechtenstein, and Norway—as well as Switzerland[1].

Free movement has benefited millions of EU citizens but its consequences have also been the subject of intense public and political debates in many EU countries, especially since the economic crisis in 2008. The fiscal effects of intra-EEA mobility have been a central concern in these discussions. A particular focus of debate has been on questions about the consequences of granting EU workers unrestricted access to the host country's welfare state, such as whether free movement encourages so-called "benefit tourism", and whether generous welfare states function as "welfare magnets" (Borjas 1999; Levine and Zimmerman 1999; Razin and Wahba 2015; Verschueren 2014). Because of its combination of unrestricted labour mobility with equal access to national welfare states for EU workers, free movement challenges long-standing theories and claims about the alleged incompatibility of open borders and inclusive welfare states (e.g. Freeman 1986).

Despite the high salience of the issue in public policy debates in many European countries, research on the fiscal effects of EU migrants, especially across different countries and welfare systems, has been very limited. The few existing studies of the the fiscal impacts of intra-EEA migration have mainly focused on single countries (e.g. Dustmann and Frattini 2014; Dustmann, Frattini, and Halls 2010; Martinsen and Rotger 2016; Ruist 2014) or at most a handful of countries (Bogdanov et al. 2014). Broader comparative research on the fiscal effects of immigration in Europe does not differentiate between intra-EEA and other migrants (OECD 2013). An important exception is a recent study by Nyman and Ahlskog (2018), who provided the first comparative cross-country estimates of the fiscal effects of intra-EEA mobility in almost all EEA countries for the period 2004-2015.

In this paper we build on the approach and analysis in Nyman and Ahlskog (2018) to develop an institutional perspective on the fiscal effects of intra-EEA mobility. More specifically, the aim of this paper is to analyse how the fiscal impacts of intra-EEA migration vary between different institutional regimes in Europe, primarily focusing on cross-country differences in the characteristics of national welfare states but also considering variations across national labour market regulations and tax systems. Our empirical analysis uses the data on the fiscal impact of intra-EEA migration provided by Nyman and Ahlskog (2018). The longitudinal character of these data (2004-2015) makes it possible to also study how the role of institutions in shaping the fiscal effects of intra-EEA mobility varies over time, in particular during and after the Great Recession (2009-2012).

That institutions matter for the fiscal impacts of intra-EEA migration is a common argument in the literature (e.g. Bogdanov et al. 2014; Bruzelius, Chase, and Seeleib-Kaiser 2016; Ruhs and Palme 2018) but it has never been tested systematically. Our investigation of how the fiscal effects of EU migrants vary across countries with different institutions, especially different welfare regimes, can also be seen as a contribution to the search for the sources of the recent political conflicts between EU member states about whether and how to reform the current rules for free movement. Given the considerable variations in the structure and generosity of national welfare systems in Europe, welfare state institutions are of particular

[1] Switzerland has not signed the EEA treaty but it is, through bilateral agreements with the EU, part of its 'internal market'. Whenever we refer to EEA migration in this paper, we also include Switzerland.

interest in the analysis of why EU countries disagree about reforming free movement (Ruhs and Palme 2018).

It is important to clarify at the outset that this paper is concerned with the fiscal effects of intra-EEA migration in the host countries only. It does not consider the fiscal effects of emigration on migrant-sending countries. We focus on EU migrants, meaning persons born in a country that is presently a member of the EU, but who are currently residing in another EEA country. Furthermore, the paper analyses only legal migrants who stay in the host country for at least one year.[2] The focus on intra-EEA migration implies an emphasis on labour migrants rather than refugees.

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The structure of the paper is as follows. Section two provides a theoretical discussion of the relationship between institutions and the fiscal impact of migration, including a review of previous research on the topic. The third section describes the data and methods used in our empirical analysis. The results are then presented in section four. The paper concludes with a discussion of the findings and suggestions for future research.

[2] More formally, the paper concerns intra-EEA migration when migrants stay in the host country during a longer period in accordance with the rules stipulated in the *Citizens' Rights Directive* 2004/38/EC (also referred to as the *Free Movement Directive*). The directive regulates the principle of free movement and article 7 gives EU citizens who are economically active (employed or self-employed, i.e. a "worker") in another member state an unconditional right to residence in the host member state. In addition, the directive stipulates that such persons shall enjoy "equal treatment with the nationals of that member state" (article 24). This group thus has the full right to access the host country welfare state and is entitled to the same social and tax advantages as citizens of the host country. The directive also gives other EU citizens the right to residence in other member states but only if they have sufficient resources "to [not] become a burden on the social assistance system of the host Member State". This latter group thus have only limited access to the host country welfare state.

2 Theorising the links between institutions and the fiscal impacts of immigration

This section discusses how and why we can expect national institutions to be linked to the fiscal effects of intra-EEA migration. Institutions in this paper refer to rules and practices that govern the labour market, the tax system, and the welfare state. Given the scarcity of cross-country empirical research that compares differences in institutions and their links to benefits and costs related to migration, it is perhaps not surprising that there has also been relatively little theorising around these potential interrelationships.

2.1 Multiple and interrelated links

National institutions may be linked to the fiscal effects of intra-EEA migration in a number of different ways. The first and most obvious way is through the specific institutional design of the welfare and tax systems. These institutions influence both the level of public expenditure on migrants, e.g. through the relative generosity of the welfare state, and the level of public revenues from migrants' taxes and social security contributions. Second, institutions may affect the demand for migrant workers, thus impacting on the scale of labour immigration and the composition of the migrant population in terms of their age, skills, and education (Ruhs and Anderson 2010). More highly qualified migrants and younger working-age migrants are likely have more positive fiscal impacts on the host country than lower qualified and/or older migrants. Third, institutions may also affect the labour market impacts of immigration on existing residents, for instance through minimum wages and employment protection legislation (Angrist and Kugler 2003).

It is, moreover, highly likely that the different ways in which institutions can affect the fiscal impacts of immigration overlap and interact, and one specific institution may may well influence the fiscal impact of immigration in several different ways. For example, labour market regulations that facilitate relatively flexible markets with a large share of low-wage jobs (such as low minimum wages and low-income benefits) can be expected to promote the employment rates of existing migrants, generate a relatively large demand for new migrant workers, especially (but not only) for employment in lower-wage jobs, and thus raise the number of migrants receiving low-income support.

To arrive at an accurate assessment of whether and how institutions are linked to the fiscal effects of EU migrants, it is of course important to consider all the relevant factors that may affect the fiscal effects of immigration. Our discussion below makes a broad distinction between migrant-related factors and country-related factors (Vargas-Silva 2015). As will become clear in the discussion below, and as we will discuss in more detail later in the paper, a key challenge for analysis of how institutions are linked to the fiscal effects of migrants is that some of the more general determinants may be "confounding variables", i.e. they may affect the the fiscal impacts of immigration and, at the same time, be related to institutions.

2.2 Individual-level factors

Earlier research on the determinants of the fiscal impact of immigration has mostly focused on the characteristics of the migrants (Bogdanov et al. 2014; OECD 2013). Labour market participation and labour income clearly stand out as key determinants of the net fiscal contribution of immigrants (OECD 2013). Considering the centrality of these factors, it is hardly surprising that previous literature has paid much attention to the reason for migration, mainly differentiating between humanitarian and labour migrants, as labour migrants tend to have markedly more positive labour market outcomes (e.g., Bogdanov et al. 2014; Cully 2012; OECD 2013, 2017). However, the focus of the present paper on intra-EEA migration makes this distinction

less relevant, as migration governed by the principle of Free Movement predominantly implies labour migration, although it also includes other forms of migration such as family migration, student migration, and "retirement migration".

Apart from employment and labour income, a number of other individual characteristics can affect the fiscal impact of immigration, including migrants' age, education, qualifications, and family composition (OECD 2013; Vargas-Silva 2015). However, many of these characteristics have a bearing on the fiscal impact of immigration through their effect on migrants' employment and income. For instance, young migrants are more likely to work and more highly qualified migrants typically receive higher wages, and both factors in turn result in higher revenues through income tax and social security contributions. Naturally, migrants also create costs as they make use of public services and the welfare state in the host country, such as schooling for their children, health care, social assistance, sickness and unemployment benefits, and pensions. To what degree these services and benefits are used by migrants depends critically on factors such as employment, age, family composition, and whether family members have also moved to the host country (OECD 2013; Vargas-Silva 2015).

These individual-level determinants of the fiscal effects of immigration are closely related to the characteristics of national institutions. We expect that a considerable share of the institutional effects we are investigating in this paper are likely to play out by affecting these individual-level factors.

2.3 Key institutions

We now discuss the three main types of institutions that could potentially affect the fiscal impact of intra-EEA migration and that are the focus of the paper: welfare state institutions, labor market institutions, and the tax system.

2.3.1 Welfare state institutions

The perhaps most straightforward way in which institutions affect the fiscal impact of intra-EEA migration relates to the generosity and other characteristics of the welfare state. A publicly funded welfare state that pays generous benefits, has less strict eligibility criteria, and offers ample public funding of services such as health care and education will, all else being equal, imply higher costs when migrants make use of these benefits and services. Conversely, countries that offer less generous benefits and rely more on private services will be subject to a smaller potential cost. However, it is also vital to consider the fiscal contribution by migrants. Assuming that the public budget of a country is balanced in the long-term, more generous welfare institutions will go hand-in-hand with higher tax revenues or other forms of public revenues. It thus follows that a more generous welfare state does not necessarily imply higher fiscal costs of immigration if these costs are compensated by higher revenues from migrants.

A specific institutional factor that has been given significant weight in both the public and scholarly debate is the degree to which welfare state benefits are of a contributory character (e.g., Bruzelius, Chase, and Seeleib-Kaiser 2016; Pennings 2012; Ruhs 2017). Contributory benefits are distinguished from other benefits by making eligibility conditional upon previous contributions during a certain time period. A typical example is social insurance benefits such as sickness and unemployment insurance. Non-contributory benefits are instead usually means-tested and eligibility depends on need and poverty, for example social assistance. It has been argued that in some relatively non-contributory welfare states, particularly Britain, this type of welfare system, in conjunction with the right to free movement within the EU, might result in relatively high fiscal costs of intra-EEA migration, at least in the short run (Ruhs 2017; The Economist 2013). These costs would arise, the argument goes, as new EU workers

with low wages would become eligible, immediately upon arrival, for non-contributory means-tested benefits. However, most welfare states contain both contributory and non-contributory benefits and it has been questioned whether the British welfare state really is more "exposed" due to intra-EEA migration (Bruzelius, Chase, and Seeleib-Kaiser 2016).

2.3.2 Labour market institutions

Considering the important role of employment and labour income in determining whether an immigrant represents a net asset or liability for a country, institutions that affect the labour market access and opportunities of migrants are likely to have a strong bearing on the aggregate fiscal impact of immigration. However, for intra-EEA labour migration, the role of labour market institutions becomes complex to analyse as intra-EEA migration flows are closely related to employment opportunities. The EU's rules for free movement require that migrants either are working in the host country or have sufficient resources to sustain themselves and not become a "burden" on the host country welfare state (2004/38/EC, article 7). Given these regulations, it is difficult to separate how institutions affect existing migrants' participation and outcomes in the labour market of the host country from how they affect the number and composition of migrants that move to a country in the first place.

Earlier research on the role of labour market institutions for immigrants' employment opportunities has particularly focused on labour market flexibility, that is, how easy it is for employers to "hire and fire" and freely set wage-levels (e.g., Ruhs 2017; Vargas-Silva 2015). In countries where employment and termination of a contract are more strictly regulated, employers may be more hesitant to employ migrants, whose productivity might be harder to assess. The flexibility of wage levels and other employment-related benefits can also be important, as lower costs for migrant workers can be pivotal for employer demand. Collective bargaining institutions that set wages and employment benefits at the industry level can prevent employers from using the employment of migrants to lower wage-levels, thus reducing one of the incentives, at least in certain occupations, to hire migrant workers (Ruhs and Martin 2008). Scholars have argued, for example, that these differences in labour market institutions are one of the main explanations of why the UK and Ireland have attracted far larger numbers of East-European labour migrants than for instance the Nordic countries (Ruhs 2017). According to this argument, the flexible Anglo-Saxon labour markets have generated greater demand for migrants for employment in low-wage jobs, whereas the stricter labour market institutions in Nordic countries have hindered the development of a similar low-wage sector and generated a relatively smaller demand for low-skilled migrants.

2.3.3 Taxes and social security contributions

A third important institutional determinant of the fiscal impact of immigration relates to the contribution of immigrants to public revenues. The main sources of revenues are income and wealth taxes, consumption taxes, and social security contributions. The level of these contributions largely depends on tax regulations and the level of labour income among migrants. In addition, the government collects revenues through capital and corporate taxes, sales and other revenues, which migrants also may contribute to.[3]

EU migrants tend on average to have higher employment rates than natives (Bogdanov et al. 2014), but studies of a subset of EU countries show that EU migrants usually receive lower wages than natives, especially so for migrants coming from the newer Eastern member states (Barrett 2010; Bogdanov et al. 2014; Brenke, Yuksel, and Zimmermann 2010; Dustmann and

[3] The categorization of revenues follow Nyman and Ahlskog (2018). See also section 3 below on methods for further details.

Frattini 2014; Gerdes and Wadensjö 2010; Vargas-Silva 2015).[4] Lower wages for migrants is also what is commonly expected in the general literature on migration (e.g., Kerr and Kerr 2011). While higher employment rates are positive for tax revenues, lower wages imply somewhat lower contributions compared to natives. As for income tax institutions, higher taxes and social security contributions for the main migrant income brackets will naturally result in higher revenues. If migrants on average have lower wages than natives, a less progressive tax system with relatively high taxes in the lower income brackets will, all else being equal, result in higher revenues from migrants. The contribution to revenues from consumption taxes (mainly VAT) also follow a straightforward logic where higher taxes on goods that migrants consume will generate higher revenues. The payment of consumption taxes is directly related to consumption, and consumption is in turn strongly correlated to income levels, which means that the contribution by migrants will largely be in line with their income levels. However, the degree to which migrants make remittances to their home countries will affect this relationship.

2.4 Non-institutional country-level determinants of the fiscal impact of immigration

Apart from institutions there are a number of other country-level variables that indirectly affect the fiscal impact of immigration. These include fiscal policy, geography, culture and language. In countries with large budget deficits, most inhabitants tend to become a fiscal liability, whereas the reverse holds for countries with large budget surpluses (Nyman and Ahlskog 2018; OECD 2013; Vargas-Silva 2015). Considering the large differences in budget balancing between EEA countries, this factor has rather profound effects on the net fiscal impact of a migrant household in different countries. For instance, Norway has been running large budget surpluses for most of the period under consideration in this paper, whereas the opposite holds for Greece.

Geography and culture mainly matter for the fiscal impact of migration by affecting the composition of migrants. Migration is often larger between adjacent countries. Socio-cultural factors and language also influence migration patterns. Thus, it is likely that the migration patterns between countries differ in ways that could affect the fiscal impact of migration. One example would be the Nordic countries with highly educated populations that also have neighbouring countries with similar characteristics. If these countries have a high level of immigration from the other Nordic countries it is likely that these migrants will have a more positive fiscal contribution than the average EU migrant, as intra-Nordic migrants probably are more highly educated and thus get more well-paid jobs. Factors such as knowledge of culture and language can also affect labour market opportunities positively. On the other hand, countries with poorer neighbours may instead have an inflow of migrants who are less educated and therefore receive lower wages. Since institutions tend to also be spatially related, it is important to consider how geography and cultural factors influence outcomes in order not to conflate institutional effects with these other effects.

2.5 Institutional regimes as an analytical approach

To study of how institutions are related the fiscal impact of migration, we use the common practice of defining institutional regimes (Esping-Andersen 1990; Hall and Soskice 2001). Each regime describes a whole set of institutions that typically appear together and follow a joint logic, creating a distinct "package" of institutions. Thus, the regime approach has the advantage of summarizing complex patterns of similarities and differences among countries in a way that allow for identifying patterns of association between institutional configurations and various outcomes, such as the impact of EU migrants on the public finances in host countries.

[4] These results pertain to Austria, Germany, Ireland, Sweden and the UK.

The main alternative would be to study all institutions separately through the use of a large number of institutional indicators—this is often referred to as the "variable approach" to the analysis of institutions (Palme 2006). However, our broad ambition to study how the institutions of the welfare state, the labour market, and the tax system affect the fiscal impact of intra-EEA migration makes such an approach very challenging. It would require the inclusion of a large number of institutional variables from all three institutional arenas. The available variation across countries and time simply does not allow for such an analysis with any kind of reasonable precision. Even though we have the advantage of having data over the period from 2005 to 2015 for the fiscal impact of intra-EEA migration, the institutional variation during this period is quite limited.

To identify the institutional regimes we draw on work from the comparative welfare state literature (e.g. Arts and Gelissen 2002; Esping-Andersen 1990; Korpi and Palme 1998) as well as the literature on political economy that puts more emphasis on the labour market and the functioning of the economy at large (e.g. Hall and Soskice 2001; Pontusson 2005). These regimes are "ideal-types" and summarize a large number of institutional characteristics, meaning that few countries will fit perfectly within a certain regime. There will almost always be exceptions where a country deviates in some aspect from what is typical for a regime. All regime-based studies share this dilemma and it follows that such studies face a trade-off between parsimony—not too many regimes—and avoiding too large differences within each regime (Arts and Gelissen 2002, 2010). While this dilemma may become even more pronounced when the scope of the analysis includes several institutional arenas, such as it is the case in this paper, different points of departure for the classification of countries tend usually to result in similar groups of countries at the end of the day (Buhr and Stoy 2015). A case in point is a comparison of Esping-Andersen's (1990) original regimes with the influential Varieties of Capitalism (VoC) approach (Hall and Soskice 2001). The former builds on how the welfare state affects decommodification and stratification, the latter on different production regimes depending on the degree of non-market coordination between firms. The clusters of countries in these two different regime classifications are surprisingly similar. This fact indicates that there is a strong connection between different types of institutions, including the institutions of the labour market and the welfare state. These correlations across institutional arenas warrant the definition and use of broad institutional regimes.

2.6 Five different institutional models

The literature offers many different alternative systems for the classification of welfare states that serve partly different underlying purposes. The classification of countries in this paper is primarily based on social protection systems meaning that social insurance, family benefits, and health insurance have not only been most important but also influenced the labels that we apply. This notwithstanding, labour market regulations are also considered, not only because they are correlated with the underlying welfare state regimes but also because they are expected to be important for the fiscal impacts. Differences in tax systems, and in particular in the financing of social protection systems, are also part of the reason for making distinctions between different regimes. There is no established way of classifying social protection systems that covers all EEA countries. The classification of the more recent member states in Eastern and Southern Europe have been particularly challenging for comparative welfare state research.

It is important to emphasise that by taking an institutional approach in our classification of countries, we aim to focus on the institutional structures and not on the underlying political ideologies that may be associated with these structures. This approach is guided by our ambition to inform an institutional analysis and, among other things, avoid confusion between intended and unintended consequences of politically-guided institutional choices.

In the subsequent exploration of the fiscal impacts of intra-EEA migration we distinguish between five categories of welfare state regimes: Basic security, Continental corporatist, Mediterranean corporatist, Universal, and State insurance.

The Basic security regime is strongly influenced by the Beveridge approach insofar as it typically provides contributory flat-rate benefits, which leaves a big role for market solutions on top of the basic provisions. The Basic security regime is also characterised by a strong emphasis on means-tested benefits, not least for families with children and partly to compensate for low social insurance benefits. Family benefits are otherwise modest by international comparison and this led some observers to label it a "market model" for family policy (Korpi 2001). Health care is universal. Labour markets are flexible, meaning that employers' are relatively free to "hire and fire" and set wages. This goes hand-in-hand with, by comparison to most other regimes, weak trade unions that have little leverage in bargaining on wages and work conditions. The economy and labour market are characterized by a comparatively large low-wage service sector and high labour market participation among men and women (Buhr and Stoy 2015; Hall and Soskice 2001; Thelen 2014). The Basic security regime includes Ireland, Malta, and the UK.[5]

The Continental corporatist regime follows the Bismarck tradition of providing statutory social protection separately for different corporations on the labour market. It is a tripartite system including employers and insured persons as well as the state, in both the financing and administration of the social protection system and where the the state plays a junior role in terms of both financing and administration, which means that general taxation is of modest importance in this regime. Health care typically follows the insurance principle within an integrated system for the provision of sickness benefits in cash and kind. Family policy in this regime has traditionally followed the "male-breadwinner" model. Funding relies heavily on social security contributions by the labour market partners and less on taxation. The economy and labour market are partly coordinated by higher level agreements between employers and employees, such as coordinated wage-bargaining, and the manufacturing industry is still an important sector (Buhr and Stoy 2015; Hall and Soskice 2001; Thelen 2014). Labour markets are strongly regulated, which has rendered them the label of "coordinated market economy" (CME). Female labour market participation tends to be low and public services for child and elderly care are modest, which means that these services are typically provided by the family. The Continental corporatist regime comprises Austria, Belgium, France, Germany, The Netherlands and Switzerland.

The Mediterranean corporatist model is a light version of the Continental corporatist regime. It shares the Continental regime's statutory corporatist organisation of the core social insurance programs. Other parts of the social protection systems are less developed, family benefits have traditionally more in common with the market model (which typically is found in the Basic security regime). There is a pension/old-age bias in the Mediterranean corporatist regime that is evident in the expenditure levels on pensions. The health care systems are typically universal which makes the regime different from the continental version. While there is a strong reliance on social security contributions also in this regime, the universal health care systems puts a burden on taxation. The strongly-regulated labour markets make these countries similar to the other coordinated corporatist countries. Labour market insiders enjoy jobs with high levels of employment protection and good social insurance coverage, whereas outsiders, typically young persons and women, struggle to get established on the labour market and often have few alternatives but short- or part-time jobs with little job security and

[5] Malta is difficult to classify as its welfare state is of a mixed character, combining elements of several different regimes. It is included in the Basic security regime due to its British legacy with many means-tested benefits, a mix of state and private services in health-care and education, as well as in general relatively low social expenditures (Briguglio and Bugeja 2011).

social protection (Häusermann and Schwander 2012). The Mediterranean corporatist regime is formed by Cyprus, Greece, Spain, Italy and Portugal.

The Universal regime combines elements from the Beveridgean and Bismarckian regimes within a universal framework. Hence, flat-rate benefits for those outside employment are mixed with earnings-related social insurance provisions. Family benefits are provided both in cash and in kind to support dual-earner households where caring responsibilities are combined with market work. Health care is universal. The funding of social services predominantly relies on taxes. This is also true for flat-rate cash benefits whereas earnings-related social insurance is funded by employers' social security contributions (in the pension system complemented by insured person's social security contribution). Countries in the Universal regime have been classified (together with other counries) as CMEs in the VoC literature (sometimes Nordic CMEs, e.g., Pontusson 2005). Employment protection legislation is on a medium level, typically in between the Basic security and Continental corporatist regimes. Labour markets are coordinated mainly via collective bargaining rather than legal regulations. With a high degree of unionisation, minimum wages are relatively high in international comparison, even if they are bargained collectively and not statutory. The Universal regime includes Denmark, Finland, Iceland, Norway and Sweden.

Given that our classification of regimes is primarily (although not only) derived from a concern about social protection, we choose the label "State insurance regime" for the former Central and Eastern European countries and the Baltics. These countries tend rely on earnings-related social insurance within a universal framework. Basic benefits in the State insurance regime are much weaker than in the Universal regime. Family benefits also tend to be less generous than in the "Universal" and "Continental corporatist" regimes and subject to substantial variation among the "state insurance" countries. Health insurance is also hybrid: many countries have universal health care while some have more insurance-like systems. The State insurance model has also been given other labels. Kuitto (2016) suggested "hybrid regime". Financing is also hybrid, with a combination of social security contributions and taxation. Labour markets tend be less coordinated than in the two corporatist regimes. The State insurance regime incorporates Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovenia, and Slovakia. For our purposes, there are also other reasons to group these countries together: they have similar intra-EEA migration patterns, being mainly sending countries rather than host countries (Nyman and Ahlskog 2018).

Table 1: Institutional regimes

Regime	**Countries**
Basic security	Ireland (IE)
	Malta (MT)
	The United Kingdom (UK)
Continental corporatist	Austria (AT)
	Belgium (BE)
	France (FR)
	Germany (DE)
	The Netherlands (NL)
	Switzerland (CH)
Mediterranean corporatist	Cyprus (CY)
	Greece (GR)
	Spain (ES)
	Italy (IT)
	Portugal (PT)
State insurance	Bulgaria (BG)
	Croatia (HR)
	Czech Republic (CZ)
	Estonia (EE)
	Hungary (HU)
	Latvia (LV)
	Lithuania (LT)
	Poland (PL)
	Slovenia (SI)
	Slovakia (SK)
Universal	Denmark (DK)
	Finland (FI)
	Iceland (IS)
	Norway (NO)
	Sweden (SE)

2.7 Theoretical expectations

While the previous literature has often argued that institutions matter (Bogdanov et al. 2014; Ruhs 2017; Ruhs and Martin 2008), there are few attempts to spell out the details of how institutions affect the fiscal impact of migration. As we use broad and multi-dimensional institutional categories, it is impossible to develop strong and specific "hypotheses". Different components and aspects of a given institutional regime may be related to the fiscal effects in different ways, some of which which may affect the fiscal effects of migrants in a positive, and others in a negative, direction. This means that, in practice, how institutional regimes are related to the fiscal effects of migration is an open and important question for empirical analysis.

Below, we discuss briefly some of our theoretical expectations about how the fiscal impacts of intra-EEA migration may vary across the five institutional regimes by discussing expenditures, revenues and the composition of migrants. Where relevant, we highlight countervailing effects which make the overall effects ambiguous from a theoretical perspective.

The Universal regime is expected to generate the highest expenditures per EU migrant household, as this regime combines relatively generous programs within all of the major areas of the welfare state. Replacement rates are comparatively high for earnings-related social insurance and there is ample family support, in both cash and kind, as well as publically funded welfare services, such as health care and education. This regime is also characterized by having the highest level of income redistribution through progressive taxes and substantial welfare transfers (Brady and Bostic 2015; Korpi and Palme 1998). Since EU migrants are expected to in general have lower incomes than the native population, they are likely to benefit from redistribution. Arguably, the generous welfare institutions would make this regime most susceptible to the "welfare magnet hypothesis", attracting migrants that would be dependent upon the support of the welfare state. However, compared to the other regimes, collective bargaining implies higher minimum wages for EU migrants and in turn higher fiscal contributions per household. Nevertheless, we expect the net contribution from an EU migrant household to be smaller in this regime than the other four Western regimes, reflecting that an extensive welfare state implies much higher costs that are not compensated by somewhat higher contributions.

We expect the expenditure per EU migrant household to be lower in the Continental corporatist regime than in the Universal regime. Whereas expenditures on cash and social insurance benefits are likely to be on a similar level, the less extensive social services are expected to be reflected in lower overall expenditures in the Continental corporatist regime. Furthermore, the corporatist model for social protection should result in lower levels of income redistribution across occupational groups. Granted that we would expect EU migrants to primarily enter the less prestigious occupations, mainly in the service sector where social protection is less generous than in the manufacturing industry (Thelen 2014), these institutions are likely to contribute to lower levels of expenditure per EU migrant household both through less redistribution across occupational groups and within service sector occupations. While collective bargaining in this regime generally would be expected to result in higher minimum wages, the recent segmentation of labour markets in this regime casts doubt on whether this mechanism is effective for EU migrants with primarily low-skilled jobs. This would thus contribute to lower revenues from EU migrant households as social security contributions connected to wage levels are important for welfare state funding in this regime. In sum, we expect the net contribution of EU migrants in the Continental corporatist regime to be somewhat higher than in the Universal regime, reflecting less costly welfare services and lower levels of redistribution.

The Basic security regime is likely to generate fewer expenditures on social insurance benefits for EU migrants than the Universal and Continental corporatist regimes, but this is partly offset by the reliance on means-tested programs. These programs are likely to play

a substantial role for the fiscal impact of EU migrants in this regime, considering the large low-wage sector and the density of EU migrants in that sector. The combination of easy entrance to the labour market and relatively large means-tested benefits could make the Basic security regime vulnerable to so-called "benefit tourism". The universal health care system is similar to what is the case in the two former regimes, resulting in similar levels of expenditure. However, comparatively low family benefits, a reliance on the market for social services and partly private funding of education are likely to contribute to lower levels of expenditure per EU migrant household. Moreover, a modest level of redistribution is also expected to limit the expenditures related to EU migrants. The flexible labour markets with low minimum wages make it easier for EU migrants to enter the labour market. However, the structure of the labour market affects not only the revenues from each EU migrant household, but also the number and the composition of EU migrants. In consequence, we expect lower wage-levels (perhaps also a larger proportion of low-skilled migrants) in this regime, which in turn should result in lower revenues per EU migrant household. We thus expect both lower levels of expenditure and revenue from EU migrants in this regime compared to the Universal and Continental corporatist regimes. Compared to the Universal regime, we assume that while the much less generous welfare programs of the Basic security regime should generate smaller expenditures, low wage employment of migrants would generate costs for means-tested programs which suggests that differences in net fiscal impact should be relatively modest in the end. In relation to the Continental corporatist regime it is less clear whether we would expect a difference at all in the net fiscal impact. While also the Continental corporatist regime has somewhat higher expenditures for welfare programs than the Basic security regime, the combination of lower revenues and extensive means-tested programs could result in a similar level of net fiscal contribution of EU migrants in the Basic security and Continental corporatist regimes.

The Mediterranean corporatist regime resembles the Continental corporatist regime but the less developed social protection systems are expected to result in lower levels of expenditure on EU migrants. Only in pensions are expenditures relatively high, but it is likely that the mainly working-age EU migrants do not benefit much from these systems. Lower levels of family support in both cash and in-kind will generate lower expenditures on EU migrants than in the other Western models. The corporatist model is also in this regime assumed to limit redistribution across occupations. The dualized labour markets, where social protection varies substantially between insiders and outsiders, are likely to further reduce EU migrants opportunities to benefit from redistribution. The rigid labour markets are also expected to make it less attractive for low-skilled EU migrants to come to these countries. However, those that still come will probably have to compete on the difficult "outsider labour market" with short and part-time contracts. It is also likely that many of the most poorly paid EU migrants work in the informal sector and hence will not be included in our data. The economies of these countries have also been struggling during much of the period we study; they were, in addition, particularly hard struck by the Great Recession. In sum, we expect distinctly lower expenditure and revenue per each EU migrant household in this regime than in the other Western regimes. However, how this affects the net fiscal contribution is not self-evident. Considering that our analysis only covers EU migrants who are relatively well-established on the labour market, it is possible that the selection of migrants in the Mediterranean corporatist regime on which we received data generate revenues that clearly exceed the expenditure they give rise to. This could mean that the net contribution of EU migrants is comparable to the other Western regimes.

For the State insurance regime we expect markedly lower levels of both expenditure and revenue per EU migrant household. This reflects the relatively short duration of a number of cash benefits as well as more modest health and social services. However, this regime

also has far fewer EU migrants and with a different composition compared to the Western regimes, as most of the intra-EEA migration goes from the East to the West. Many of the "EU migrants" in our data for this regime are thus rather individuals affected by the territorial changes in Eastern Europe after the Second World War as well as after the collapse of the Communist Eastern bloc. They are, among other things, much older than the EU migrants in the Western regimes, which affects revenues negatively. In addition, the countries in this regime are less economically developed and have lower wage levels. We thus expect both low levels of expenditure and revenues from EU migrant households in the State insurance regime. In total the net contribution of EU migrants is expected to be substantially smaller in this regime than in the four Western regimes.

3 Methods and data

The empirical approach of this paper builds on broad comparisons of different groups of countries / institutional regimes. This is an essentially descriptive approach where general patterns between countries and over time are depicted. These comparisons reveal average differences between regimes and thus allow for conclusions about whether there are systematic differences in the fiscal impact of immigration across different institutional regimes. To also be able to do comparisons over time makes it possible to see to how institutional differences develop during the economic cycle, including the years of the Great Recession (2009-2012).

Earlier studies typically focus on one or two countries or at most a handful of countries. The inclusion of almost all EEA countries in our analysis, and the comparison of different regimes that are represented by more than single countries, thus represents a substantial contribution to the literature. However, estimating the fiscal impact of immigration is always very challenging, and even more so when trying to relate differences in fiscal impacts to institutions. As discussed above, a large number of factors may affect the fiscal impact of immigration and to adequately measure and control for all of these is not possible. In addition, it is not all that clear what should be regarded as part of an institutional effect and what should rather be controlled for as a possible confounder. For example, it seems quite clear that the composition of migrants should be controlled for when a country has an old migrant population due to a large historic immigration but little recent immigration. In particular if these historic migration flows have little to do with institutional factors. However, it is less clear whether differences in the fiscal impact arising from differences in education levels of migrants should be controlled for in an institutional analysis—especially if we have the strong expectation that these differences in education arise because some institutional regimes are more attractive for highly educated migrants, whereas others mostly attract low-skilled migrants.

These challenges imply that any calculation of fiscal effects of migration is highly dependent on a set of assumptions. This applies to the underlying estimates of the fiscal effects of intra-EEA mobility (taken from Nyman and Ahlskog 2018) as well as the actual analyses in this paper. It is vital to acknowledge these difficulties at the outset and be cautious with any causal interpretations of the differences between institutional regimes.

3.1 Data

The analyses in this paper build on estimates of the fiscal impact of EU migrants that have been provided in Nyman and Ahlskog (2018) as part of the overall reminder project. The data and estimates are described briefly below and discussed in much more detail in Nyman and Ahlskog (2018).

The data cover all EU countries, except Luxembourg and Romania. For most countries, the data cover the period 2005-2015, although some countries have shorter time-series. The EEA countries Norway and Iceland, as well as Switzerland, are also included in the analysis.

An EU migrant is defined as a person born in a country that is presently a member of the EU, but who is currently residing in an EEA country other than their country of birth. In consequence, the migrants' countries of origin only include EU countries, whereas the host countries also include the EEA members Norway and Iceland, as well as Switzerland. This is why we refer to *intra-EEA migration* but to *EU migrants*. Furthermore, this definition means that individuals who immigrated before a country became an EU member count as EU migrants in our analysis. As a consequence, the migrants in our data are a very diverse group; some migrants may have recently arrived while others others have lived in the host country for decades. The main alternative would be to distinguish between citizens and non-citizens. However, such an approach would be problematic as countries differ widely in their

requirements for citizenship, leading to non-comparability across countries. Country of birth is therefore the most common approach in the empirical literature on migration (Bogdanov et al. 2014; Kahanec and Pytliková 2017; OECD 2013; Vargas-Silva 2015). Using the length of stay in the host country could be a reasonable approach but it is not possible in our analysis due to a lack of data on this issue.

Apart from EU migrants, the data also allow for separating out "natives" and migrants from outside the EU. The term "natives", which we use for linguistic convenience, refers to persons born in the country where they are currently residing. Migrants from outside the EU are people currently residing in an EEA country but who were born in a country that is not presently an EU member state.

The estimation of the fiscal impact of migration utilizes EU-SILC survey data (https://ec.europa.eu/eurostat/w union-statistics-on-income-and-living-conditions). The implementation of this survey generally excludes migrants who have spent less than a year in their current country of residence (Nyman and Ahlskog 2018). Arguably, this exclusion of short-term migrants, often labour migrants, will probably result in a negative bias on the fiscal effects of immigration as this group typically would contribute to the public budget through work but it would incur relatively few costs.

3.1.1 The model for calculating the fiscal impact

A static model (also referred to as an accounting model) is used to estimate the fiscal impact of immigration in each country. Fiscal data come from the AMECO macro-economic database and other Eurostat databases. These data comprise the whole public budget, and costs and revenues are then—following a top-down logic—"assigned" to either immigrants or natives using certain allocation criteria. For some costs and revenues this is done on the basis of individual or household-level survey data (EU-SILC), such as information on social benefits and incomes. Other costs and contributions are modelled using demographic characteristics of the migrant and the native populations. Yet other costs and contributions are allocated on a per capita basis. The estimates can be presented as a "per annum estimate of the effect on the public budget, on the margin, of adding a particular type of person or household to the population, in a given fiscal year" (p. 6, Nyman and Ahlskog 2018). How to allocate costs and benefits to migrants and natives is a delicate task and subject to a range of assumptions and limitations in the available data. Nyman and Ahlskog (2018) provide a more in-depth discussion and robustness checks regarding how sensitive the estimates are to altering some assumptions.

The fiscal effects are aggregated from individuals to households as some data are only available on the household level. In households that include both migrants and natives, the costs and contributions are allocated by the fraction of the household that belongs to each group. For instance, in a household consisting of two EU migrants and one native, two thirds of the costs and contributions of this household will be a attributed to EU migrants and one third to natives.

An inherent dilemma in calculating the fiscal impact of immigration is at what time point the assessment is to be made and how to handle future costs and revenues (Vargas-Silva 2015). The fiscal impact of a migrant will most likely change over time and typically the initial period of stay gives rise to larger costs and less revenues. Migrants who have lived for some years in a country typically become more integrated, learn the language better and develop other skills that may make it easier to access higher-paid jobs. However, eventually people also grow old and, therefore, will generate more fiscal costs through pensions and health care needs. Another difficult question is how to handle the children of migrants. They will at first give rise to costs through schooling and child care, but will eventually work and make substantial contributions through taxes.

The static model takes an agnostic approach to the issue of the time horizon. It simply estimates the fiscal effects of immigration for each given year during the studied time period, without making any long-term projections. Thus, the static approach does not consider any dynamic effects of immigration and does not try to model any future effects. Such effects would include, for example taking into consideration how the future characteristics of immigrants would affect estimates in regard to wages but also care needs due to old age. Not considering dynamic effects also implies assuming that the labour incomes of natives are unaffected by immigration. The difficulty with trying to estimate dynamic effects is that they require data that typically are unavailable or will have to be based on very bold assumptions. How long intra-EEA migrants will end up staying in the host country is obviously an important question but it is very difficult to estimate.

Our data do not take into account how children who are born in the host country, but whose parents are migrants, will affect the public budget in the long-term. In our analysis, these children will be included as a fiscal cost attributed to immigration as long as they live with their parents and need education and welfare services. However, when they grow up and enter the labour market they will instead count as natives. This will probably underestimate the long-term fiscal contribution of migrants.

3.2 Measures of the fiscal impact of immigration

Our main indicator of the fiscal impact of immigration is the annual net fiscal effect per migrant household in different institutional regimes. This indicator summarizes the revenues and expenditures that may be attributed to an average EU migrant household. The indicator is first derived annually for each country, then the average is calculated per regime. This measure can then be interpreted as the average marginal fiscal effect of an additional EU migrant household in a certain institutional regime, thus enabling us to show differences in the marginal fiscal effects across institutional regimes. The indicator is expressed in euros per year and is adjusted using data on purchasing power parities (PPPs) from Eurostat.[6] PPP-adjustment is done to compensate for the considerable differences in price levels within the EU and thus improves the comparability of data across countries (cf. OECD 2013).

It is important to emphasize that our main indicator of the fiscal effects of immigration can not be interpreted as a measure of the *aggregate effect* of immigration on the public budget. Naturally the aggregate effect also heavily depends on the number of migrant households across regimes and countries. As the number of migrant households varies widely across the EU, this aspect makes for large differences in the aggregate effects. However, in a study of the effects of institutional regimes, we do not in general wish to make the number of households a factor since it is questionable to attribute differences in the number of migrants to differences in institutions. Nevertheless, it may still be of interest to compare the per household indicator with the aggregate fiscal effect of intra-EU migration. This may be particularly important from a policy perspective, as the marginal effect of a certain type of household might be of less relevance if the number of households of this type is so small that the overall effect on the public budget is more or less zero. Consequently, we also present the aggregate net fiscal effect of migration in the different institutional regimes, expressed as a percentage of GDP.

[6] Formally we are using Eurostat's price level indices since all our data are already converted to euros. That is, we do not need to use the PPPs as these are expressed in the national currencies and offer both conversion to a common currency and price level adjustment. Since only the latter is relevant for our data, the price level indices are used. As we are interested in the effects of migration on the whole public budget, we use price level indices calculated on GDP.

3.3 Controlling for the composition of migrants and other possible confounders

As discussed above, there is a large number of factors affecting the fiscal impact of intra-EU migrants. Some of these factors could credibly be related to institutional differences between countries, whereas some others can be attributed to historical circumstances or present differences between countries that have little to do with institutions or migration *per se*. To evaluate to what degree differences across regimes may be explained by possible confounders or irrelevant factors, we run a set of regression models controlling for such factors. These factors may broadly be divided into three types: the fiscal balance of the public budget; the composition of migrants in terms of background characteristics such as age and education; and lastly, to what degree migrants are economically active.

The balance of the public budget tends to have a profound effect on whether the average resident in the country is a net asset or liability, as mentioned in section 2.4 above. In countries with large surpluses, most people tend to be net assets, whereas the reverse is the case in countries with large budget deficits. Since this holds for natives as well as migrants, it would, arguably, be problematic to let this factor greatly influence the analysis. Norway, Greece and Ireland constitute the extreme cases in our data. Norway averages a budget surplus of 12.8 per cent of GDP during the period under consideration in this paper, which is far higher than any other country. Greece is at the opposite end of the spectrum, with the largest average budget deficit, amounting to an average of 8.82 per cent of GDP (and 15.1 per cent in 2009). However, when looking at single years, the Irish case is also exceptional. Ireland had a budget deficit of 32.1 per cent in 2010 and an average during the time period of 7.0 per cent. Many countries had considerable budget deficits during the period studied here. The average deficit over the period was, for example, 5.97 per cent in the UK, 4.33 in France, 4.83 in Spain and 3.37 in Italy. The Norwegian surpluses are most likely closely connected to oil revenues and can thus be regarded as an anomaly. However, for the less extreme cases it is not all that clear whether differences in the fiscal impact of immigrants due to differences in the fiscal balance should be controlled for in the analysis and cross-country comparisons.

More generous universal welfare states have for decades had a tendency to have more positive balances in their public finances. Rather than controlling for the budget deficit, an alternative approach would be to consider a more positive balance in the public finances as part of the Universal regime. One could argue that the fiscal balance is, at least in part, the result of institutional differences between countries, and/or even that it is directly affected by the migrant population. We could for instance think of a country with institutions that make it more robust against the economic downturn during this period, and that also has migrants who contribute a lot to the public budget through work (which might also be a reflection of country-level institutions). It then becomes problematic to eliminate this possible effect of an institutional characteristic by controlling for the fiscal balance in the analysis.

The key question, then, is to what degree the differences in fiscal balance between countries and regimes should be seen as exogenous to country institutions and the fiscal effect of migrants. For the reasons outlined above, this is an inherently difficult question that cannot be settled within framework of this paper. In our analysis, we include the fiscal balance in some of the control models to reveal to what degree the differences in fiscal effects of EU migrants across countries reflect differences in the fiscal balance across regimes. When interpreting the results of these models, the potential links to regime specific institutional factors should be remembered. The macro-data used for the "control" variable are taken from Eurostat and cover net lending for the general government, expressed as per cent of GDP. It thus portrays the size of public budget surpluses or deficits in relation to GDP.

Differences in the composition of the migrant population are another important explanation for cross-country differences in the fiscal effect of migrants. To what degree migrants contribute

to the economy, and the degree to which they generate costs, is influenced by migrants' individual characteristics such as age, education, and family characteristics. As cross-country differences in the characteristics of the migrant population depend, at least in part, on socio-cultural and geographical factors rather than institutions, exploring to what degree these factors could explain differences in the fiscal impact of migrants between regimes is important. There are particularly strong reasons to control for age in the analysis, as previous inflows of migrants, often decades ago, have a strong influence on the age distribution of the migrant population in a number of EU-countries (see discussion in Nyman and Ahlskog 2018).

The case for controlling for education and family characteristics of migrants across institutional regimes is less clear, because these factors may be related to institutional differences. That is, migrants may choose their countries of destination on the basis of some of these institutions, e.g. based on child care and schooling policies and/or returns to education (which may differ across labour market institutions).

To explore how the composition of migrants affects the differences in fiscal effects of EU migrants across institutional regimes, we use control variables for age (four age groups, 0-14, 15-29, 30-59 and 60-80), education (using dummies for six levels of education on the individual level), civil status (cohabitating/married or not), and the number of persons in the household. All of these variables are then summarized annually on the country-level separately depending on migrant status, describing for example the share of EU migrants that are between 30-59 years old or that have acquired a certain educational level. These variables thus describe the average differences in the composition of migrants across countries and over time. Using groups instead of averages for age means that we avoid that a combination of very young and old migrants results in an average of working-age migrants.

Lastly, employment and labour income are commonly regarded as the most decisive individual-level factors for the fiscal impact of migrants (e.g., OECD 2013). These factors thus have the potential to be a strong driver of differences across institutional regimes. However, cross-country differences in employment and labour income could depend heavily on institutions, particularly labour market institutions, making it far from evident that these should be controlled for in an institutional analysis of the fiscal effects of EU migrants. Individual characteristics such as age and education also indirectly affect labour market participation, but employment and labour income is arguably more directly related to country-level institutions. This implies that we need to be cautious in the interpretation of the models including employment and labour income. However, considering their key role in shaping the fiscal impact of migrants, it is clearly important to explore to what degree differences between regimes are dependent on these factors. Two variables are used to test this relationship: we first use employment, defined as having an annual wage income of 1000 euros or more, as a dichotomous control variable. Second, we use the whole scale of wage income to take into account differences in wage levels.

We test the explanatory power of all these variables through simple OLS regressions. Running this type of "control models" necessitates having a point of comparison. We need to see to what degree differences between institutional regimes may be explained by the control variables discussed above. One way would be to see to what extent differences in the fiscal impact of natives and migrants depends on these variables (see e.g., OECD 2013). However, such an approach would make differences across countries in the characteristics of the native population very decisive for the results, for instance labour market participation. That is, since we would make natives the point of comparison for the fiscal impact of migrants, the fiscal impact of natives would strongly affect the results, which is not in line with the aim of this paper. Instead we choose to directly study to what degree the differences in fiscal impact of EU migrants between the regimes can by explained by these control variables. Our regression

models are specified as follows:

$$Y_{it} = \alpha + \delta_k + \beta_1 X_{it} + \epsilon_{it} \quad (1)$$

where Y_{it} is the net fiscal effect of an average EU migrant household in country i at year t. α is the intercept and ϵ_{it} the error term. δ_k is a set of regime dummies (where k is the number of regimes -1). β denotes a vector of different control variables that vary over countries, i, and year, t. For the models that explore the impact of the composition of migrants, the control variables describe the average of a compositional variable for a certain year, for instance the share of EU migrants that are employed or belong to a certain age group. We use country clustered robust standard errors as the residuals are likely to be correlated within countries.

We also need to define a reference category for the comparison of institutional regimes. We have chosen to use the Basic security regime as our reference category. This means that that the tests of statistical significance of differences in fiscal effects between the regimes will be made in relation to the Basic security regime. Since the issue of intra-EEA migration is mainly an issue in the "Western" regimes, it is logical to pick one of the Western regimes as a reference category. Among these Western regimes, we have two reasons for choosing the Basic security regime. First, the debate on EU migration and migrants' access to the welfare state has been particularly fierce in countries with Basic securiy regimes, in particularly in the UK. As argued above, it has often been argued in public and academic debates that the character of the welfare state and the labour market in this regime (the basic security regime) would be more vulnerable to EU migration. It is, therefore, interesting to see whether this regime actually differs from other regimes in terms of the fiscal impact of EU migrants.

Second, among the Western regimes, the Basic security regime is commonly portrayed as the least generous welfare regime, with relatively meagre benefits and limited public-funded welfare services. The labour market also works markedly different, with more flexible employment and wage-setting, compared to other regimes. There may, therefore, be a sharper difference between this regime and the other Western regimes, so using it as the reference category allows for the testing of these differences.

4 Results and discussion

We present our results in three steps. We begin by showing the results for our main indicator, the annual fiscal impact of an EU migrant household across the institutional regimes, without any controls. In addition to showing the average annual effects during the period under consideration (2005-2015), we explore of the differences in revenues and expenditure across institutional regimes, and of the influence of single countries ("outliers") on the results. We also discuss how the fiscal impacts have developed over time, especially during and after the Great Recession.

In the second step, we investigate the impact of adding controls. This serves a dual purpose. It enable us, first, to examine if any regime differences remain after accounting for differences in employment status, other individual characteristics, and the fiscal balance. Second, it allows us to decompose the fiscal effects and explore the mechanisms that may explain differences in the fiscal impact of migrant households across institutional regimes. We also compare briefly the different sources of revenue and expenditure across institutional regimes.

Lastly we present the aggregate fiscal effects that also take into account the number of EU migrant households in different countries and institutional regimes.

4.1 The fiscal impact per household

The fiscal impact of EU migrants is first presented in relation to the two other main groups in the data, natives and migrants from outside the EU. Figure 1 presents these results for the period 2004-2015, separating the five different institutional regimes. The focus here is on the "raw" data without any controls.

Figure 1 shows that EU migrants have a more positive effect on the public budgets than both natives and migrants from outside the EU in all institutional regimes except for the State insurance regime. The net contribution of EU migrants is highest in the Universal regime, corresponding to 7200 euros per migrant household annually. The contributions in the Continental corporatist and Mediterranean corporatist regime are somewhat lower, corresponding to 5300 euros and 5900 euros per year, respectively. The contribution of an average EU migrant household in the Basic security regime is considerably lower at 2700 euros annually.

In the Basic security regime, natives constituted a net fiscal burden during the period under consideration. This is mainly explained by the considerable budget deficits in both the UK and especially Ireland during this period. Figure 1 suggests that, in contrast to the net-deficits associated with natives, migrants generated positive net fiscal effects during this period in Basic security regimes.

The State insurance regime stands out, in that the data suggest that EU migrants in these countries generated a slight fiscal burden of about 600 euros annually. It should be noted, however, that the numbers of EU migrant households in these countries are relatively small (and this is reflected in the aggregate fiscal costs and benefits, as will be shown later in this paper).

The net-fiscal contribution of EU migrants is considerably larger than that of non-EU migrants, across all regime types. This may, at least in part, be due to the fact that a greater share of EU migrants are labour migrants and therefore in employment.

Figure 1: Net annual fiscal effect per household in different institutional regimes, by migrant status, 2005-2015

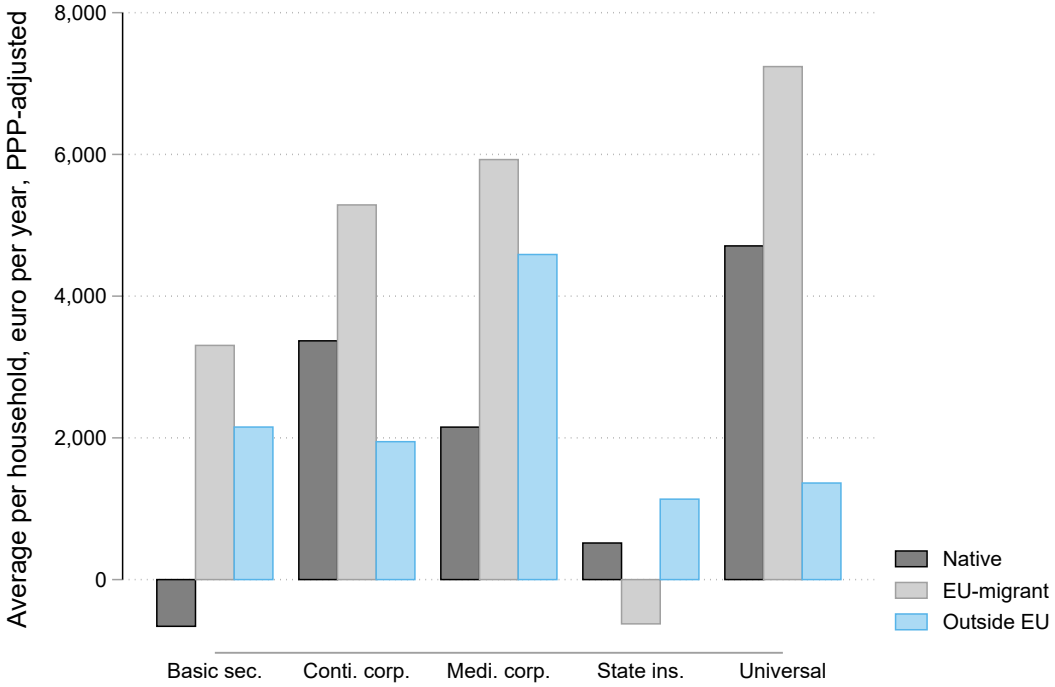


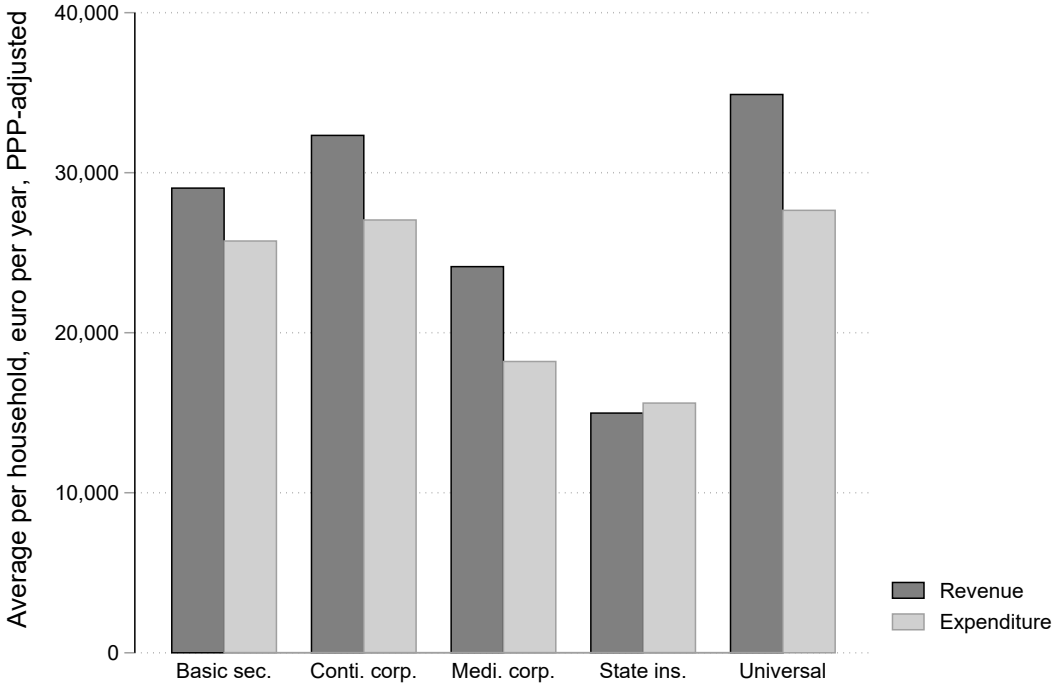
Figure 2 separates annual revenues and expenditures attributed to EU migrant households across the different regime types. These data show that the smaller net fiscal contribution of EU migrant households in the Basic security regime is mainly explained by lower revenues compared to the Continental corporatist and Universal regimes, as expenditure in these three regimes is on a similar level. While the Continental corporatist and Universal regimes demonstrate similar levels of expenditures and revenues, the levels of both revenues and expenditure are clearly lower in the Mediterranean corporatist regime and lowest in the State insurance regime. This is an expected result considering the lower income levels in these countries.

The data also allow for decomposing the revenues and expenditures into their components for each of the regimes. These figures are presented in the appendix. This analysis reveals some important differences in the structure of the welfare states and their funding across the regimes. The Universal regime and to some extent the Basic security regime receive most of the revenues from EU migrants through consumption, income and wealth taxes. In contrast, the Continental corporatist regime is characterized by relatively high social security contributions. The Mediterranean corporatist regime falls somewhere in-between. In terms of expenditure, the Continental corporatist regime stands out with high pension expenditures. The Basic security and Universal regime spend relatively more than the others on welfare benefits. In all of the regimes, expenditures on welfare services such as education and health care together with infrastructure and similar goods represent the largest costs.

4.1.1 The influence of single countries

To what extent are these *average* effects influenced by countries that can be considered "outliers" in the data? To explore this question, we have identified one such country within each

Figure 2: Annual revenue and expenditure per EU migrant household in different institutional regimes, 2005-2015



regime, including some negative and some positive outliers.

In the Basic security regime Ireland is quite exceptional. Ireland was strongly affected by the Great recession and the average fiscal contribution of an EU migrant household in Ireland is close to zero, whereas it equals about 5300 to 5500 Euros in the other Basic security countries, i.e. the UK and Malta. Among countries in the Continental corporatist regime, Switzerland stands out with its strongly positive fiscal effect of EU migrants. While the difference between Switzerland and other countries in the Continental corporatist regime is less drastic than the difference between Ireland and the other countries in the Basic Security regimes, the per EU migrant household impact of 9100 euros in Switzerland is clearly higher than the regime average of 5300 euros.

In the State insurance regime Poland is an exceptional case. In Poland, an average EU migrant household generates an annual fiscal cost of 9900 euros. In the other State insurance countries, the cost is at most 3500 euros (Estonia) and in several countries within this regime an EU migrant household generates a net fiscal contribution. The exceptionally high cost in Poland is likely to be related to the fact that the EU migrant population is quite old, an issue that we will return to in the analysis below. The different age structure of EU migrants in Poland can be explained, at least in part, by the extensive territorial changes that Poland underwent after the Second World War. Many of the "EU migrants" in Poland are likely persons born in territories that were not Polish at the time but are part of Poland today.

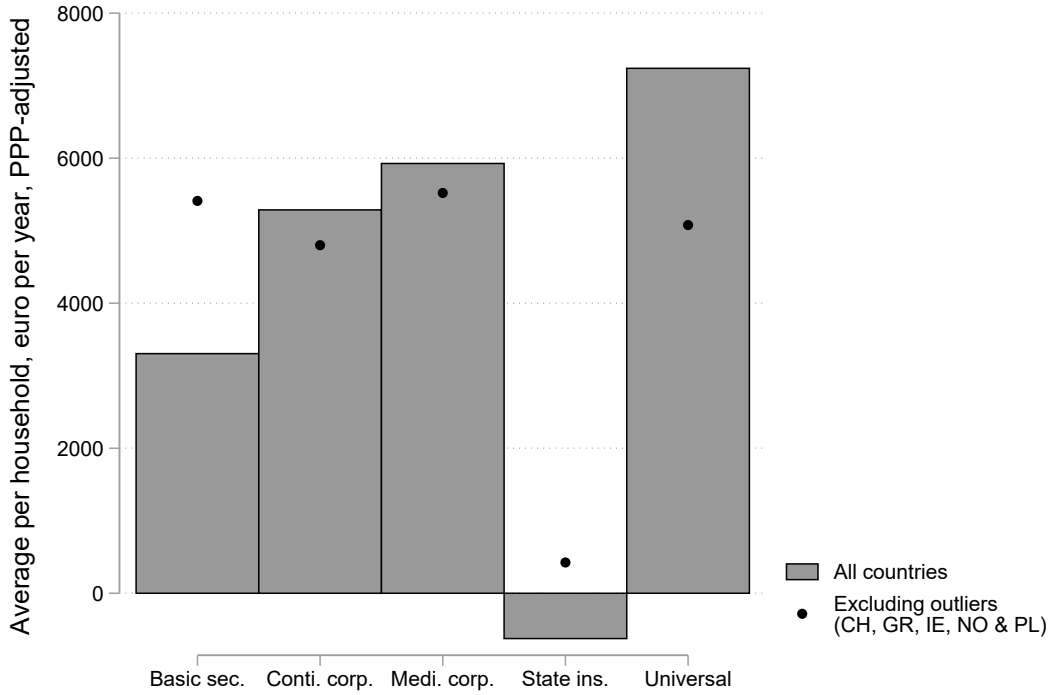
In the Mediterranean corporatist regime, Greece is a special case with particularly high public budget deficits. Nevertheless, the average EU migrant household in Greece annually contributes with 7500 euros to the public budget, which is more than the average among the Mediterranean corporatist countries (5900 euros). It is Spain where the the fiscal contribution

of EU migrant households is the smallest within this regime (2100 euros).

Lastly, in the Universal regime, Norway can hardly be compared to any other country. The fiscal contribution of an EU migrant household there equals 15700 euros. Norway's exceptionally large budget surpluses are likely to play an important role here, perhaps in combination with a favourable selection of EU migrants.

In Figure 3 the net fiscal effect of an EU migrant household is depicted per regime, with and without the outliers discussed above. Clearly, the exclusion of Ireland makes the largest difference, substantially increasing the fiscal contribution of EU migrants in the Basic security regime. It appears that most of the difference between the net-fiscal impact of an EU migrant household in the Basic security regime on the one hand, and in the Universal and two corporatist regimes on the other hand, may be explained by Ireland. The exclusion of outliers also has a substantial impact on the net-fiscal contribution of an EU migrant household in the Universal regime: excluding Norway reduces the regime average considerably and makes it similar to the average of the other "Western" regimes. Excluding Poland from the State insurance regime switches the regime average from slightly negative to slightly positive (to an estimated annual net contribution of about 600 euros per EU household). In general the exclusion of outliers leaves only marginal differences between the net-fiscal effects of an EU migrant household across the four Western regimes (dominated by the EU15 Member States which are mostly countries experiencing net-inflows of EU migrants).

Figure 3: Annual net fiscal effect per EU migrant household in different institutional regimes, separating outliers, 2005-2015



4.1.2 Developments over time

All of the previous figures present annual averages for the period 2005-2015. The averages conceal considerable variations over time, especially around the Great Recession of 2009-2012. Figure 4 shows how the annual net fiscal effect of an EU migrant household changed over time in the different institutional regimes. The left pane includes all countries, whereas the right pane excludes the most influential outliers, namely Ireland, Norway, and Poland.[7] The left pane of the figure shows a large drop in the net-fiscal contribution of an EU migrant household in the Basic security regime at the time of the financial crisis. This is almost completely driven by Ireland as can be seen by comparing the two figures. For the Universal regime, excluding Norway lowers the net fiscal effect in general, but particularly so during the first few years of the period under consideration. This was a time when Norway was running exceptionally large budget surpluses in the range of 14 to 19 per cent of GDP. The exclusion of Poland leads to a general shift upward of the net fiscal effect of an EU migrant household in the State insurance regime, without influencing significantly the character of the development over time.

There is a clear drop in the net fiscal contribution of EU migrants in all regimes when the economic crisis hit in 2009. For the Western regimes, the crisis was associated with a drastic drop in the net contribution of an EU migrant household of about 4000 to 5000 euros per year (even though the data suggest that the decline seems to have started already in 2008). Nevertheless, if we exclude the three outliers (right pane of Figure 4), EU migrant households

[7] While Switzerland and Greece were also discussed as potential outliers above, their actual impact on the net fiscal effects in the Continental corporatist and Mediterranean corporatist regimes turned out to be rather small. Thus, we chose to here only exclude the outliers that actually had a large impact on the fiscal impact of their respective regimes.

Figure 4: Annual net fiscal effect per EU-migrant household in different institutional regimes over time, 2005-2015

in the four Western regimes still made a clear net contribution to the public budget of at least 2500 euros. In contrast, in the State insurance regime the net fiscal impact of an EU migrant household turned negative during the economic crisis, even though this development appears less drastic if Poland is excluded. From 2011, all regimes started to recover, with the net fiscal contribution of EU migrants increasing and, by 2015, reaching close to pre-crisis levels. The recovery of the fiscal impact of EU migrant households seems to have been especially strong in the Basic security regime. In contrast to the developments in the four Western regimes, the initial phase of recovery in the State insurance regime was followed by a moderate decrease of the net fiscal contribution of migrants from 2012 to 2015.

One of the clearest patterns emerging from these Figures is that the Western regimes tended to develop in very similar ways over time, especially if the outliers are excluded. But even with all countries included, the development after the crises in the Continental corporatist, Mediterranean corporatist and Universal regimes were strikingly similar. This suggests that differences in national institutions may have had relatively little impact on how the Great recession affected the fiscal contribution of EU migration. However, the development in the State insurance regime stands out. Not only is the level of the fiscal impact much lower, as expected, but its development after the crisis was also less positive than in the other regimes. However, these simple figures do not tell us how the overall economic situations of the different countries affected immigration and emigration flows. It is entirely possible—and indeed likely—that the group of migrants present in the countries and regimes considered in this analysis changed substantially over time.

4.2 Decomposing the institutional differences

We run regressions models to determine to what degree the differences between the institutional regimes described above may be explained by a set of control variables. This is essentially a test of whether the differences in the fiscal impact of EU migrants across regimes are correlated with these control variables. The analysis thus reveals the potential impact of confounding factors, such as the composition of migrants, on the fiscal effects of EU migrants households across regimes. The analysis can also contribute to an understanding of the possible mechanisms behind regime differences in the fiscal effects of intra-EEA migration. The models aim to show how the fiscal impacts of EU migrants would look like in the different regimes if we took some of the compositional differences out of the picture (such as cross-regime differences in the age distribution of migrants).

It is important to emphasise that these regression models do not allow for any causal interpretations of the difference across the institutional regimes. The number of factors that vary between the regimes, and the reasons for why they vary in these ways, are too complex to be pinned down in these models. Nonetheless, these control models serve the important purpose of illuminating to what degree differences depend on variation between the regimes in the characteristics of migrants and differences in the financial balance of public budgets.

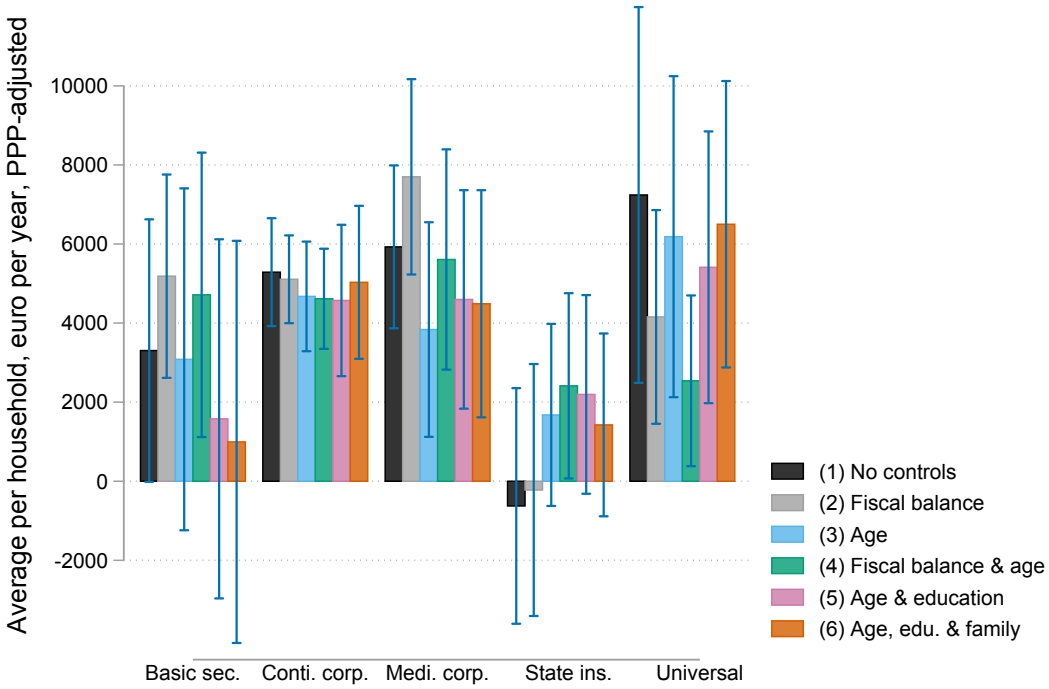
In the regression models, we use the Basic security regime as the reference category among the regimes. The regression tables can be found in the Appendix. In the main text below, we rely on graphical presentations of these models and choose to present the predicted values for all of the regimes, setting all of the variables at their means. These predicted values thus portray the fiscal impact between regimes when certain variables are "held constant" across the regimes. The predicted values are complemented with 95 per cent confidence intervals based on country-clustered robust standard errors. The results of the control models are presented graphically in Figures 5 and 6.

4.2.1 *The fiscal balance and migrants' background characteristics*

In Figure 5 we explore to what degree the variation in the fiscal impact of EU migrants across the regimes may be explained by differences in the fiscal balance and the background characteristics of migrants. The background characteristics include age, education, and family composition (civil status and the number of household members).

The "base model" (1) only includes controls for the different institutional regimes. It thus portrays the same cross-regime differences in the annual fiscal impact of an EU migrant household that was presented above (Figure 1 and Figure 3). The first control added, in model (2), is a linear variable for the balance of the public budget. Controlling for the fiscal balance clearly brings the Basic security regime closer to the other Western regimes. This is an expected result since the members of the Basic security regime ran large budget deficits during most of the studied time period. The impact of adding this control variable has a small impact on the average fiscal impact of EU migrants in the Continental corporatist regime, but there is a relatively large and positive effect on the impact in the Mediterranean corporatist regime, and a large negative effect in the Universal regime. These three changes are also not surprising, as the Mediterranean corporatist countries also ran quite large budget deficits during this time period. The Continental corporatist countries instead had relatively balanced budgets, whereas the Universal countries, particularly Norway, ran large budget surpluses. In short, adding this control eliminates the cross-regime differences in the fiscal impact of intra-EEA migration that may be attributed to differences in the fiscal balance, thus increasing the fiscal contribution of

Figure 5: Predicted net fiscal effect per EU migrant household: controlling for regime differences in the fiscal balance and migrants' background characteristics, 2005-2015



Fiscal balance refers to "net lending" in per cent of GDP.
The age control consist of four age groups and the share of migrants in each group (0-14, 15-29, 30-59, 60-80).
Family includes controls for civil status and household size.
Error bars show 95 per cent confidence intervals.

EU migrants in regimes with large budget deficits and decreasing the contribution of migrants in regimes with large budget deficits.

In the next model (3), we examine the impact of age differences in the EU migrant populations across regimes. The model uses four age groups to enable us to take account of the fact that individuals usually represent a net asset when they are of working age, but a net liability as children and when elderly. Compared to the base model, we see that the net fiscal contribution decreases in all of the Western regimes, but it increases in the the State insurance regime. This is most likely explained by the fact that the State insurance regime has considerably older EU migrants than the Western regimes. The Mediterranean corporatist regime has a particularly large share of EU migrants who are of working age (30-59 years old), and relatively few elderly EU migrants (60-80 years old), which probably explains the drastic drop in the fiscal impacts when controlling for the age of migrants in this regime. The older age distribution of the migrant population in the State insurance regime may, at least to some degree, be explained by the fact that Eastern Europe experienced many more substantial territorial changes since the Second World War, giving rise to a considerable number of mainly older people who are now living in another country (in the State insurance regime) than in which they were born.

In the fourth model we study the joint impact of age and the fiscal balance. While these two factors are clearly of different character, both of them give rise to differences between the regimes that, we argue, are at least partly exogenous to the relationship between institutions and the fiscal impact of immigration. Age distributions of migrant populations depend on historical migration flows and the fiscal balance depends, among other things, on oil revenues and the degree to which the national economy and labour market were affected by the Great Recession. As shown in Figure 5, controlling for this combination of variables mainly affects the fiscal impacts of EU migrants in the Basic security, Mediterranean corporatist, and Universal regimes. This is again a reflection of the effect of the differences in fiscal balance between the regimes, but age differences play a part as well. For the Basic security and Mediterranean regimes these two variables have counteracting effects, mainly explained by the fact that these regimes have had large budget deficits but also have younger EU migrants than the other regimes. Adding fiscal balance to age, comparing Models (3) and (4), consequently leads to larger fiscal contributions by EU migrant households in these regimes. In the Universal regime the change is more drastic due to both large fiscal surpluses and relatively young migrants in this regime. Controlling away both of these positive factors for the fiscal contribution of EU migrants results in considerably smaller fiscal contributions. The fact that adding fiscal balance to age results in more marginal differences for the Continental corporatist and State insurance regimes is an effect of the fact that the fiscal balance in these these regimes have been close to the average for the whole sample.

The last two Models, (5) and (6), test whether, in addition to differences in age, cross-regime variations in migrants' education and family characteristics affect the estimates of their fiscal impacts. We capture education in the model by using a set of variables measuring the share of EU migrants that have reached certain educational levels. The family indicators measure the share of EU migrants who are married or co-habitating with a partner, as well as the number of persons in the household.

The Basic security and Universal regimes are again those that are most affected by adding these additional controls. Compared to Model (4), that controls for age only, adding controls for education and family characteristics leads to a lower fiscal contribution of EU migrant households in the Basic security regime. This seems to mainly be an effect of education, as the addition of family characteristics has a more limited effect. The Universal regime is also negatively affected by the addition of education to age. The negative effect of education in both of these regimes is likely explained by the fact that they have more highly educated EU

migrants than the other regimes. That the additional effect of family characteristics is negative for the Basic security regime and positive for the Universal regime could be explained by the fact that the Universal regime has more generous family benefits and welfare state services for families. These benefits and services are costly and thus decrease the net contribution of EU migrants in the Universal regime. When we control for family characteristics this negative effect is removed. The Basic security regime spends considerably less on family benefits and welfare services, and adding controls then has the opposite effect.

In Models (5) and (6) the net contribution of EU migrants is actually higher in the State insurance regime than in the Basic security regime. This result indicates that the difference in the fiscal impact of EU migrants between these two regimes may fully depend on age, education and, to some extent, family differences in the composition of EU migrants.

4.2.2 Employment

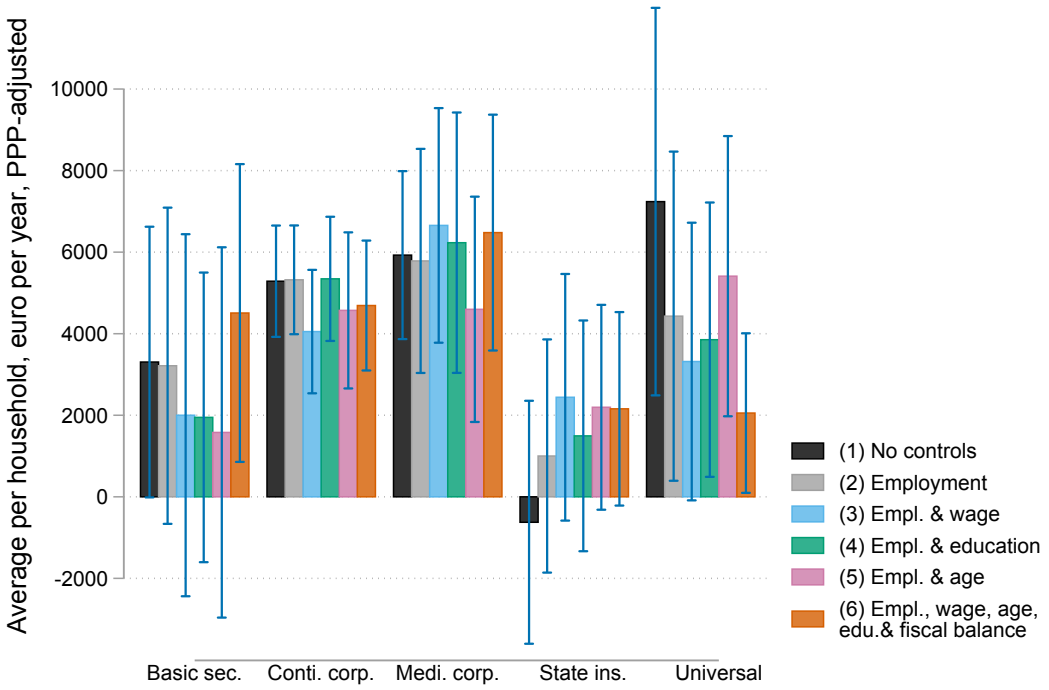
In Figure 6, we examine the impact of migrants' employment status and labour income on the cross-regime differences in their fiscal effects. It is well known that employment and income can have have an important influence on the fiscal impact of migrants (Bogdanov et al. 2014; OECD 2013; Vargas-Silva 2015). However, as has been discussed above, the employment and wage income of migrants may clearly be affected by country-level institutions, in particular labour markets institutions. As a consequence, one could argue, it might not be appropriate to "control away" these differences in an institutional analysis. The primary purpose of the models discussed below is to explore employment as a potential mechanism for differences between institutional regimes, rather than to use employment as a typical exogenous control variable.

The first model shown in Figure 6 is again the base model without any control variables other than the institutional regimes. The second model includes a control for employment, measured as the percentage of the EU migrant population that is employed. Adding this variable does not have much of an effect in the Basic security, Continental corporatist and Mediterranean corporatist regimes. However, it implies a change from a negative to a positive net contribution of EU migrants in the State insurance regime, and a substantial decrease of the net contribution in the Universal regime. This suggests that about half of the difference in the net contribution between the State insurance regime and the Universal regime is explained by employment. It is a reflection of the fact that employment among EU migrants is substantially higher in the Universal regime (72.9 per cent) than in the State insurance regime (39.4 per cent), but also compared to the other Western regimes (ranging between 53.2 and 57.6 per cent).

The third model adds wage income as a control, which acts as a measure of both the extent to which migrants work and their wage levels. Adding this control decreases considerably the difference between the fiscal effects in the State insurance and Western regimes as there is a clear increase in the former but a decrease in the Western regimes, except for the Mediterranean corporatist regime. This reflects the substantial differences in wage-levels between these regimes and the State insurance regime. When holding both employment and wages constant, the fiscal contribution of EU migrants in the State insurance regime is larger than in the Basic security regime.

The fourth model explores the influence of employment and education. The education of migrants is likely to affect their opportunities and performance on the labour market. However, the difference compared to only controlling for employment is marginal, except for in the Basic security regime. This would indicate that the effect of education in general is channeled through differences in employment. The Basic security regime is somewhat different though, as the contribution of migrants decreases when we add education to employment. It would

Figure 6: Predicted net fiscal effect per EU migrant household: controlling for regime differences in migrant employment and wages, 2005-2015.



Fiscal balance refers to "net lending" in per cent of GDP.
The age control consist of four age groups and the share of migrants in each group (0-14, 15-29, 30-59, 60-80).
Error bars show 95 per cent confidence intervals.

appear that the higher education level of EU migrants in this regime is important for their fiscal contribution, which results in a lower level of contributions once we control for education in addition to employment.

In model five, age is included in addition to employment. When comparing this model to the second model that only includes employment, there is little difference for the Basic security regime, whereas the Mediterranean and Continental corporatist regimes are negatively affected. The State insurance and Universal regimes are instead positively affected. This indicates that EU migrants in the latter two regimes, relative to employment status and age, contribute more than what the EU migrants in the two corporatist regimes do.

The sixth and last model explores how much of the differences between the fiscal impacts across the regimes may be explained by including all of the influential control variables together: employment, wage, age, education and fiscal balance (only excluding family composition that has a more marginal effect). The effect is most drastic in the Basic security and Universal regimes. Fiscal balance is once again likely the variable that matters most here, and since the Basic security regime has had considerable budget deficits, controlling for this increases their contribution substantially. The Universal regime instead loses the positive effect of large budget surpluses and the fiscal contribution of EU migrants in this regime drops down to a level comparable to the State insurance regime.

4.2.3 Assessing the impacts of the control variables

The control models discussed above improve our understanding of what is driving the differences between the fiscal contributions of EU migrants across different institutional regimes. The variables that have the greatest potential for explaining these differences are the fiscal balance, age, employment, and wage. In particular, the fiscal impacts of EU migrants in the Basic security and Universal regimes appear to be highly dependent on these variables. Both regimes have relatively young, well-educated EU migrants who work more and earn more than in the other regimes.

The countries in the Universal regime also had a much more favourable fiscal balance than countries in the other regimes, a factor that seems capable of largely or even fully explaining the positive difference between the fiscal contribution of EU migrants in this regime and the other Western regimes. In contrast, the countries in the Basic security regime had large budget deficits in the period under consideration in our analysis. Controlling for the fiscal balance thus brings the estimated fiscal impact of EU migrants in Basic security countries up to a level that is similar to that in the other Western regimes. The results for the Basic security regime are also dependent on the education levels of the migrants. This likely reflects the fact that many of the EU migrants in these countries are highly educated, with 43.6 per cent and 41.5 per cent tertiary educated EU migrants in the UK and Ireland respectively.

The near zero—or even negative—contribution of EU migrants in the State insurance regime appear to be strongly driven by the differences in age distributions in this regime compared to the Western regimes, but also differences in educational levels. When controlling for age, the difference compared to the Basic security regime becomes rather small. If controlling for both age and fiscal balance there is virtually no difference to the Universal regime. When controlling for both age and education the net fiscal contribution in the State insurance regime actually surpasses that of the Basic security regime.

The results from the regression tables and the significance tests support the view that the differences in the net-fiscal impacts of EU migrant households across the regimes are small (see the Tables in the Appendix). In the base model, without any controls, only the difference between the Basic security regime and the State insurance regime is significant (but only at the 90 per cent level). Among all the models analysed, in Appendix Tables A.1 and A.2, there is just one case of a significant difference at the 95 per cent level between the Basic security regime and the other regimes; it pertains to the difference to the State insurance regime when controlling for the fiscal balance (Model (2) in Table A.1). Except for these two differences, none of the other differences between the Basic security regime and the other regimes in Figure 5 are significant. For the models on employment in Figure 6 there are only three significant differences when comparing the Basic security regime to the other four—and then on the 90 per cent level. These differences pertain to the Continental corporatist and the Mediterranean corporatist regimes when controlling for employment and wage, as well as employment and education in Models (3) and (4).

The significance tests have to be interpreted cautiously since the variation in the data is limited and the standard errors are quite large. In other words, our precision in testing for differences between the regimes is limited, especially when adding several control variables. Nevertheless, the general lack of significant differences between the estimated fiscal impacts of EU migrants in the Basic security regime and the other Western regimes is still revealing, especially when considering the large institutional differences between these regimes. It is particularly surprising that there are no significant differences at all between the Basic security and Universal regimes as these are commonly portrayed as lying on opposite ends on the spectrum in terms of welfare state generosity. These results simply give no indications that the broad characteristics of the welfare state have strong impacts on the net fiscal contribution of

EU migrants.

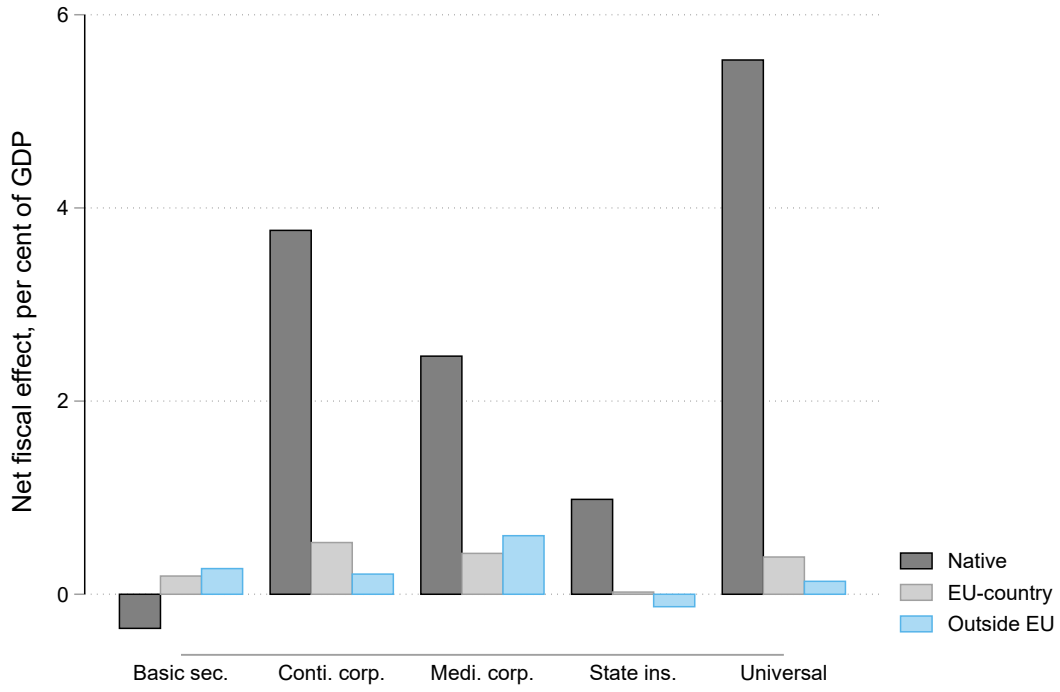
4.3 The aggregate fiscal effect of immigration

All of the results presented above report the fiscal impact of EU migrants in terms of the annual net-contribution of an average EU migrant household, expressed in euros, in the different institutional regimes. While we argue that this "per household" indicator is the most suitable measure for an institutional analysis given our data, the aggregate effect of all EU migrants on the public budget in a country is not without relevance, especially for policy makers. Studying the aggregate effect implies that we also take into consideration the number of EU migrant households in the different regimes. To improve comparability across countries, we chose to evaluate the aggregate fiscal effect of EU migrant households relative to the GDP of the host country, which means that we adjust the effect by taking account of the size of the economy.[8]

Figure 7 describes the aggregate fiscal effect of natives, EU migrants, and migrants from outside the EU, expressed as per cent of GDP. This is the equivalent of Figure 1 above. The comparison with natives and migrants from outside the EU puts the fiscal effect of EU migrants into perspective. In general, the aggregate fiscal effect of EU migrants can be expected to be small relative to that of the native population, considering that EU migrants are a small proportion of the population in most countries. However, in the Basic security regime the two categories of migrants (EU and non-EU) together generate a net fiscal contribution that

[8] We do not in these models PPP-adjust the data as such an adjustment, in addition to putting the fiscal effect in relation to GDP, would result in a kind of 'double compensation' for differences in price levels across countries and regimes.

Figure 7: Aggregate annual net fiscal effect by migrant status in different institutional regimes, 2005-2015



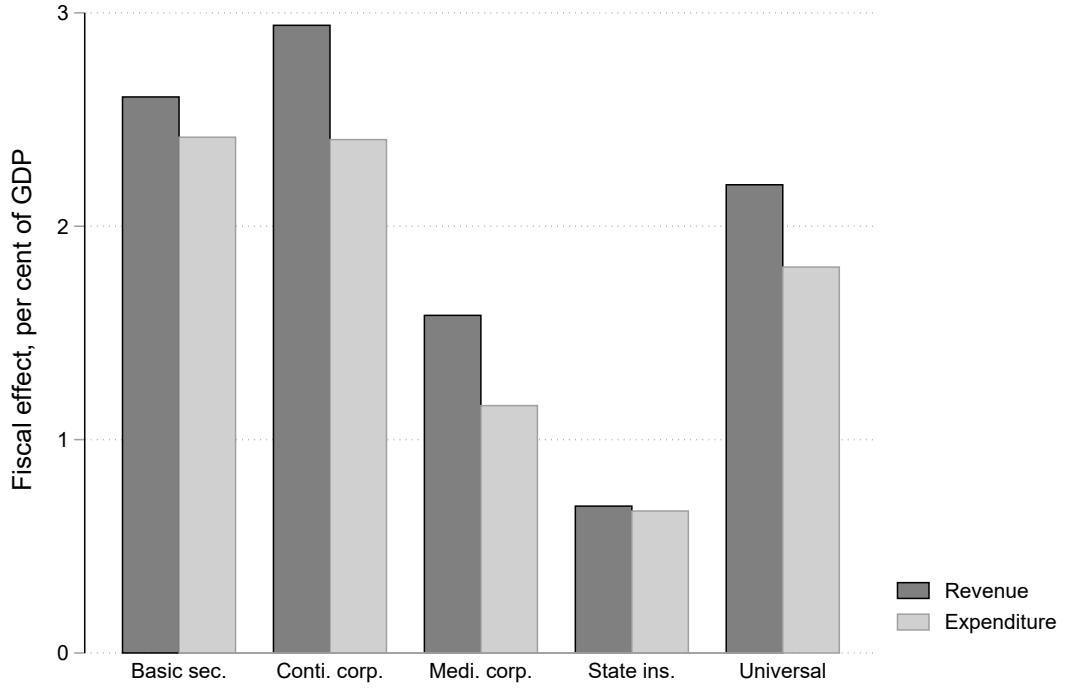
is larger than the net fiscal burden of the native population.[9] The net contribution of EU migrants is largest in the Continental corporatist regime (0.54 per cent of GDP), followed by the Mediterranean corporatist regime (0.42 per cent), and the Universal regime (0.39 per cent). The aggregate fiscal effect of EU migrant households in the State insurance regime is very close to zero, reflecting the small number of EU migrants in these countries.

Figure 8 separates the aggregate revenues and expenditures related to EU migrants (equivalent to Figure 2 above). The Continental corporatist regime, where the aggregate net fiscal impact is the greatest, has the highest levels of revenues among the regimes and expenditures that are about the same as in the Basic security regime. The latter has lower revenues than the Continental corporatist regimes which explains the lower aggregate net effect. Across regimes, both revenues and expenditures are lowest in the State insurance regime. This is an expected result given the relatively small number of EU migrants in the countries in this regime. The comparatively sizable fiscal contribution of EU migrants in the Mediterranean corporatist regime reflects a relatively large difference between revenue and expenditure, even though both are lower than in the Basic security and Continental corporatist regimes.

These aggregate effects of the fiscal impact of EU migrants could, just as the per-household estimates, be susceptible to the impact of single countries that may represent extreme cases within the regimes. We therefore check the data for the influence of outliers. However, since the number of EU migrants is an important factor in the aggregate effects, the outliers are not necessarily the same as the ones identified in the "per household" analysis earlier in the paper. In the Basic security, Universal, and Continental corporatist regimes, the outlier countries in

[9] The fiscal contribution of EU migrants equals 0.19 per cent of GDP, the corresponding figure for non-EU migrants is 0.27 per cent, whereas the fiscal burden of native population amounts to 0.35 per cent of GDP.

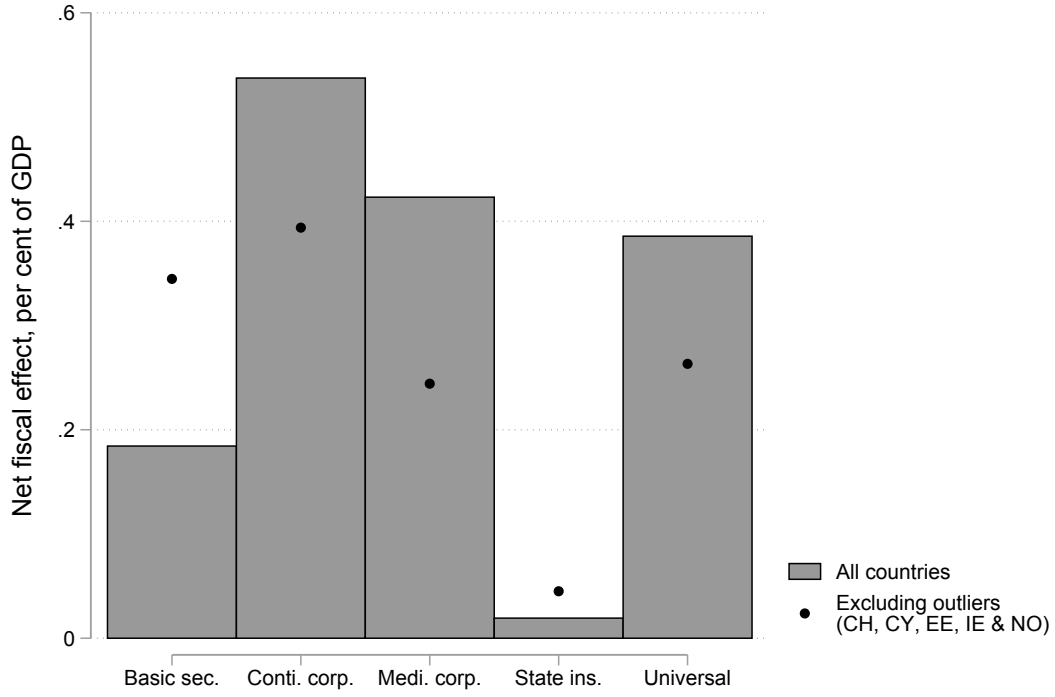
Figure 8: Aggregate annual revenue and expenditure of EU migrants in different institutional regimes, 2005-2015



the analysis of the aggregate effects are the same as those in the analysis of the per-household effects (Ireland, Norway and Switzerland). However, in the Mediterranean corporatist regime, Cyprus very clearly stands out on the aggregate effect (a large positive effect of 1.3 per cent of GDP). In the State insurance regime, Estonia has a somewhat more negative aggregate fiscal effect than the previous outlier, Poland (-0.17 per cent of GDP).

Figure 9 depicts the aggregate fiscal effects of EU migrant households with and without the outliers. Excluding Ireland increases the fiscal contribution of EU migrants in the Basic security regime to a level that is close to that in the other Western regimes (from 0.19 to 0.35 per cent of GDP). In the Continental corporatist regime, the exclusion of Switzerland means a clear reduction in the fiscal contribution of EU migrants (from 0.54 to 0.39 per cent of GDP). This reflects the fact that Switzerland has the largest share of EU migrants in the sample (16 per cent of the population) and they have a substantial positive effect on GDP (Nyman and Ahlskog 2018). The exclusion of Estonia from the State insurance regime has a relatively marginal effect. Removing Cyprus from the Mediterranean corporatist regime reveals that much of the positive aggregate fiscal contribution of EU migrants in this regime depends on Cyprus, as the net effect clearly decreases from 0.42 to 0.24 per cent of GDP. In the Universal regime, leaving out Norway generates a considerable drop in the fiscal contribution of EU migrants (from 0.39 to 0.26 per cent of GDP). Again, this is a reflection of Norway's rather exceptional case, with its large budget surpluses and strongly positive aggregate effects of EU migrants.

Figure 9: Aggregate annual net fiscal effect per EU migrant household in different institutional regimes, separating outliers



5 Conclusion: Summary of key findings

The main aim of this paper has been to analyse whether and how the net fiscal effects of EU migrant households vary across European host countries with different social protection and labour market regimes. Distinguishing between five different institutional regimes covering 29 countries, our analysis suggests that the main cross-regime difference in the fiscal impact of intra-EEA migration can be found between the Eastern State insurance regime and the four Western regimes. The fiscal contribution of EU migrants in the Western regimes is significantly higher than in the State insurance regime. However, among the Western regimes, where the great majority EU migrants are residing, the differences between the institutional regimes are limited. Initially, looking at the raw data, we found some considerable differences across Western regimes but these can be explained by single "outlier" countries with rather exceptional circumstances, in particular Norway and Ireland. Norway had remarkably large budget surpluses (largely connected to oil revenues) during the time period under consideration (2005-2015), which strongly affected the net fiscal contribution of all people (not just migrants) residing in Norway. Conversely, Ireland was hit hard by the Great Recession and suffered from extreme budget deficits during a couple of years.

We do not find any statistically significant differences between the fiscal effects of EU migrants in the Basic security and Universal regimes, despite the fact that these two regimes are often depicted as diametrically opposed in terms of welfare state and labour market institutions. Expenditure per EU migrant household is higher in the Universal regime, in line with what we would expect in a more generous welfare state. However, this higher level of expenditure is more than compensated by higher revenues per migrant household, translating to a net fiscal contribution in the Universal regime that is similar to that in the Basic security regime. In other words, we do not find any evidence in support of the common idea that migrants generate more of a fiscal burden in generous welfare states.

The net fiscal contribution of EU migrants is distinctly positive in all four of the Western regimes, ranging from 3,300 PPP-adjusted Euros per year in the Basic security regime, to 7,200 Euros per EU migrant household in the Universal regime. If single outliers within the regimes are excluded (Greece, Norway, Ireland, and Switzerland), the cross-regime differences become very small. Excluding outliers, the average EU migrant household generates a net fiscal contribution between 4,800 Euros (in the Continental corporatist regime) to 5,500 Euros (in the Mediterranean corporatist regime) per year.

In all four Western regimes, the per-household fiscal contribution of EU migrants clearly surpasses the contribution of the average native household. Only in the countries of the State insurance regime does an EU migrant household, on average, represent a fiscal burden (about 600 euros per migrant household and year). This result is critically dependent on a single country, Poland, with a particularly old EU migrant population, which is probably explained by specific historical circumstances. If Poland is excluded from the analysis, the net fiscal effect is positive even in the State insurance regime, amounting to 400 euros per household and year.

Looking at developments over time, there was a clear dip in the fiscal contribution of EU migrants around the financial crisis of 2009. After the crisis, a period of recovery could be observed in all regimes except for the State insurance regime. The variation in fiscal impacts of EU migrants over time is particularly drastic for the Basic security regime, which is explained by Ireland's particularly tough economic situation during the Great Recession. However, in the Continental corporatist, Mediterranean corporatist and Universal regimes, EU migrants represented a clear positive contribution to the public budget even during the crisis years. If Ireland is excluded from the Basic security regime, this observation holds even for that regime. Excluding outliers, the positive net fiscal contribution of the average EU migrant household never falls below 2500 Euros per year in the four Western regimes. The general picture that

emerges from this analysis is that, in terms of the fiscal effects of EU migrants, these Western regimes behaved surprisingly similarly even over time, and especially so during the recovery period following the financial crisis.

When controlling for the fiscal balance and the composition of migrants across regimes, the differences in the net effects of EU migrants decreases. In particular the Basic security, State insurance, and Universal regimes are affected by these controls, which can be explained by the fact that they deviate quite clearly from the other regimes on some of these control variables. Whereas the net effect for the Basic security regime looks more favourable when controlling for the fiscal balance, the opposite holds for the Universal regime. This is largely explained by the fact that Ireland had large deficits during these years, whereas Norway had large budget surpluses. Cross-regime differences in the age composition of EU migrants explain quite a lot of the variation in the fiscal impacts of EU migrants across regimes, and they are particularly important for the State insurance regime. The State insurance regime has older EU migrants than the other regimes. When controlling for age in the analysis, the State insurance regime comes considerably closer to the other regimes, in particular the Basic security regime. For the Universal regime, a large share of the positive net fiscal contribution of EU migrants is explained by a combination of the fiscal balance and the age composition of EU migrants.

As could be expected, employment emerges as a decisive factor in the control models. The State insurance and Universal regimes stand out in this regard. A large part of the positive fiscal effect of EU migrants in the Universal regime may be explained by relatively high employment rates, whereas holding employment differences constant in the analysis leads to a change from a negative to a positive net fiscal effect in the State insurance regime. These results reflect the fact that EU migrants are more likely to work in the Universal regime than in other Western regimes, while the opposite holds in the State insurance regime. When applying a broader set of controls for the characteristics of migrants—considering age, employment, wage and education in addition to controlling for fiscal balance—the Basic security and Universal regimes are again affected the most. When factoring out differences dependent on all these control variables, there is essentially no difference left between the fiscal impacts of EU migrants in the State insurance regime and the Universal regime. For the Basic security regime, this extensive set of controls instead lifts the net contribution to a level in line with the Continental corporatist regime, considerably higher than in the Universal regime.

The control models should be interpreted cautiously, considering that applying these control variables implies introducing a counterfactual case that may be debatable. We are effectively taking away the fact that some countries have EU migrants that are younger, work more, and are better educated than migrants in other countries. Whether this is just due to fortunate circumstances or the result of successful policies and, therefore, at least partly explained by their institutions, is an important but difficult question.

If we consider the number of migrants in the different regimes, thus studying the aggregate fiscal effect of EU migrants, the impacts remain clearly positive in all of the Western regimes, ranging from 0.19 per cent of GDP in the Basic security regime to 0.54 per cent in the Continental corporatist regime. The small number of EU migrants in the State insurance regime implies that the effect there is very close to zero. As it was the case in the per-household data and analysis, these aggregate results are susceptible to the influence of single outliers within each regime. If these outliers are excluded, the aggregate results become more similar across the four Western regimes, ranging between 0.24 to 0.39 per cent of GDP. These results thus further corroborate our earlier finding that there are more similarities than differences in the fiscal effects of EU migrants across the Western regimes.

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Appendix

Control tables

Table A.1: Net fiscal effect per EU migrant household: controlling for differences in fiscal balance and migrant background characteristics. Reference category: Basic security regime.

	(1) net_eu_ppp	(2) net_eu_ppp	(3) net_eu_ppp	(4) net_eu_ppp	(5) net_eu_ppp	(6) net_eu_ppp
State ins.	-3929.4*	-5407.6**	-1406.7	-2300.7	617.4	430.8
	(2177.2)	(1991.2)	(2389.9)	(2115.0)	(2648.3)	(2583.5)
Conti. corp.	1982.5	-78.10	1591.0	-99.14	2993.4	4036.1
	(1751.8)	(1362.3)	(2346.4)	(1918.8)	(2593.9)	(2938.5)
Medi. corp.	2622.5	2512.7	753.0	893.9	3019.5	3494.2
	(1906.7)	(1785.3)	(2461.0)	(2190.4)	(2432.5)	(2717.6)
Universal	3934.6	-1030.0	3101.3	-2173.9	3832.5	5504.9
	(2829.4)	(1841.3)	(2879.2)	(2130.0)	(3032.8)	(3442.5)
Fiscal balance		625.4***		671.1***		
		(102.7)		(67.01)		
Aged 15-29			13405.2	18119.1*	14761.0	24258.2
			(8674.5)	(10427.8)	(16797.4)	(21502.4)
Aged 30-59			32418.8*	30824.4**	29964.8	42792.4
			(16174.3)	(11853.0)	(18995.1)	(25248.1)
Aged 60-80			7353.9	6055.4	8106.8	23250.1
			(10771.3)	(9888.1)	(15103.4)	(22794.3)
Primary edu					-10595.7	-13306.2
					(9702.4)	(11122.7)
Lower sec edu					-4295.6	-6742.1
					(10747.3)	(11428.1)
Upper sec edu					-6658.5	-7497.7
					(7824.8)	(8814.4)
Postsec edu					-6807.0	-7345.1
					(11753.1)	(13421.6)
Tertiary edu					6191.9	5393.9
					(9933.8)	(10090.6)
Married/cohabitating						-356.4
						(6156.3)
Household size						3608.6
						(3377.5)
Constant	3304.6*	6809.0***	-15915.0	-12248.5	-14043.2	-33258.7
	(1620.1)	(1267.5)	(10712.3)	(9202.5)	(18701.7)	(30078.7)
N	304	304	304	304	304	303

$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. Country-clustered robust standard errors in parentheses.
The age and education variables describe the share of migrants belonging to each group. Since each set of these variables would constitute a perfect linear combination if all groups were included, one group has to be excluded and function as the reference category. For education the reference category is less than completed primary education. For age the reference category is the age group 0–14.

Table A.2: Net fiscal effect per EU migrant household: controlling for differences in migrant employment and wages. Reference category: Basic security regime.

	(1) net_eu_ppp	(2) net_eu_ppp	(3) net_eu_ppp	(4) net_eu_ppp	(5) net_eu_ppp	(6) net_eu_ppp
State ins.	-3929.4*	-2212.8	439.9	-453.5	-1754.9	-1657.1
	(2177.2)	(2327.1)	(2706.7)	(2392.8)	(2404.9)	(2014.7)
Conti. corp.	1982.5	2107.6	2051.3	3397.2*	1555.4	243.2
	(1751.8)	(2000.7)	(2159.2)	(1938.1)	(2339.6)	(2113.4)
Medi. corp.	2622.5	2571.4	4655.1*	4283.9*	1022.9	2500.7
	(1906.7)	(2326.2)	(2707.4)	(2253.1)	(2580.9)	(2225.9)
Universal	3934.6	1216.2	1316.7	1905.1	2293.3	-2264.2
	(2829.4)	(2781.3)	(2781.2)	(2659.1)	(2539.1)	(2167.7)
Employed		14444.1**	8476.6	11377.3*	5194.6	731.5
		(6699.2)	(8399.6)	(5662.5)	(5994.7)	(6053.1)
Wage			0.139**			0.0395
			(0.0665)			(0.0378)
Primary edu				-6468.8		-3997.0
				(9171.0)		(12315.0)
Lower sec edu				4848.4		-2165.9
				(10803.5)		(11627.3)
Upper sec edu				1032.8		-184.7
				(7299.9)		(10094.3)
Postsec edu				-13243.3		-3691.9
				(9852.2)		(12379.8)
Tertiary edu				12953.4		2712.3
				(9635.4)		(10657.3)
Aged 15-29					2684.0	9265.2
					(9818.2)	(12340.7)
Aged 30-59					22978.4	21208.1
					(17697.0)	(12988.2)
Aged 60-80					2257.9	1315.1
					(11187.2)	(11940.8)
Fiscal balance						623.1***
						(74.54)
Constant	3304.6*	-4499.5	-5794.1	-8180.6	-10987.6	-6933.0
	(1620.1)	(3995.5)	(4051.7)	(9664.7)	(10852.8)	(16705.5)
N	304	291	291	291	291	291

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$. Country-clustered robust standard errors in parentheses.
The age and education variables describe the share of migrants belonging to each group. Since each set of these variables would constitute a perfect linear combination if all groups were included, one group has to be excluded and function as the reference category. For education the reference category is less than completed primary education. For age the reference category is the age group 0–14.

The components of revenues and expenditures

These graphs present how the revenues and expenditures per EU migrant household are distributed on the different components of these measures. Revenues consist of consumption taxes (con), taxes on income and wealth (inc), capital and corporate taxes (cap), social security contributions (ssc), sales (sal) and other revenue (oth). Expenditures consist of benefits (ben), pensions (pen), non-congestible public goods (npg), demographically modelled expenditures (dem) and congestible public goods (cpg). Non-congestible public goods include defense expenses and other public goods which costs do not necessarily increase as a result of a larger population. Demographically modelled expenditures among else include welfare state services such as education and health care. Congestible public goods where the need or usage increase in relation to the population, resulting in larger costs when the population increases. This, for instance, includes infrastructure and public services such as fire protection. See Nyman and Ahlskog (2018) for further details.

Figure 10: Revenue components per EU migrant household in different institutional regimes

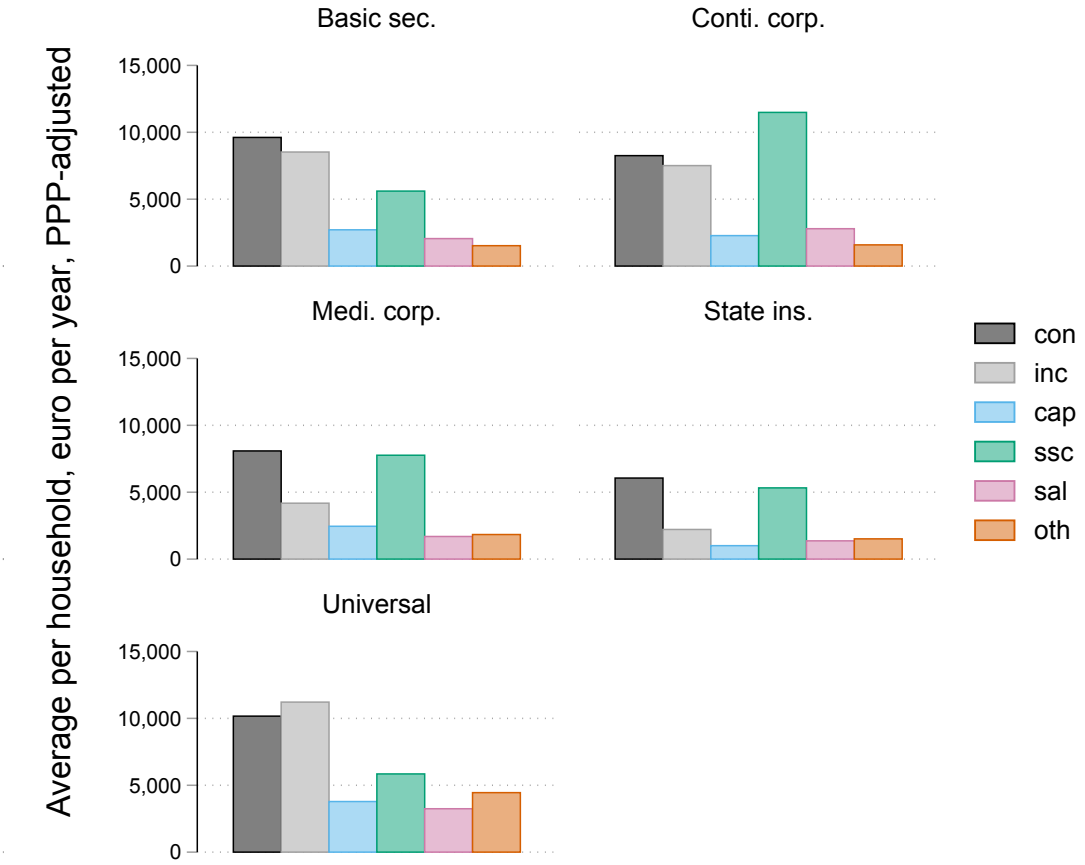
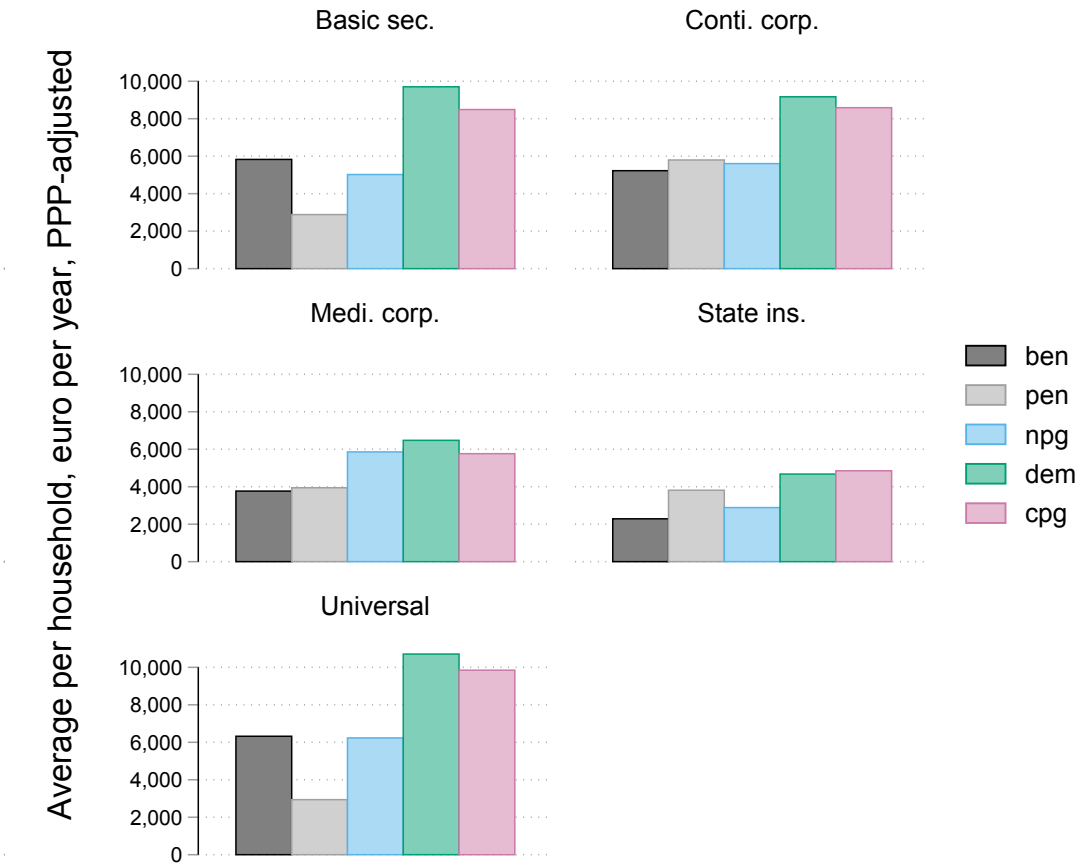


Figure 11: Expenditure components per EU migrant household in different institutional regimes



REMINDER

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